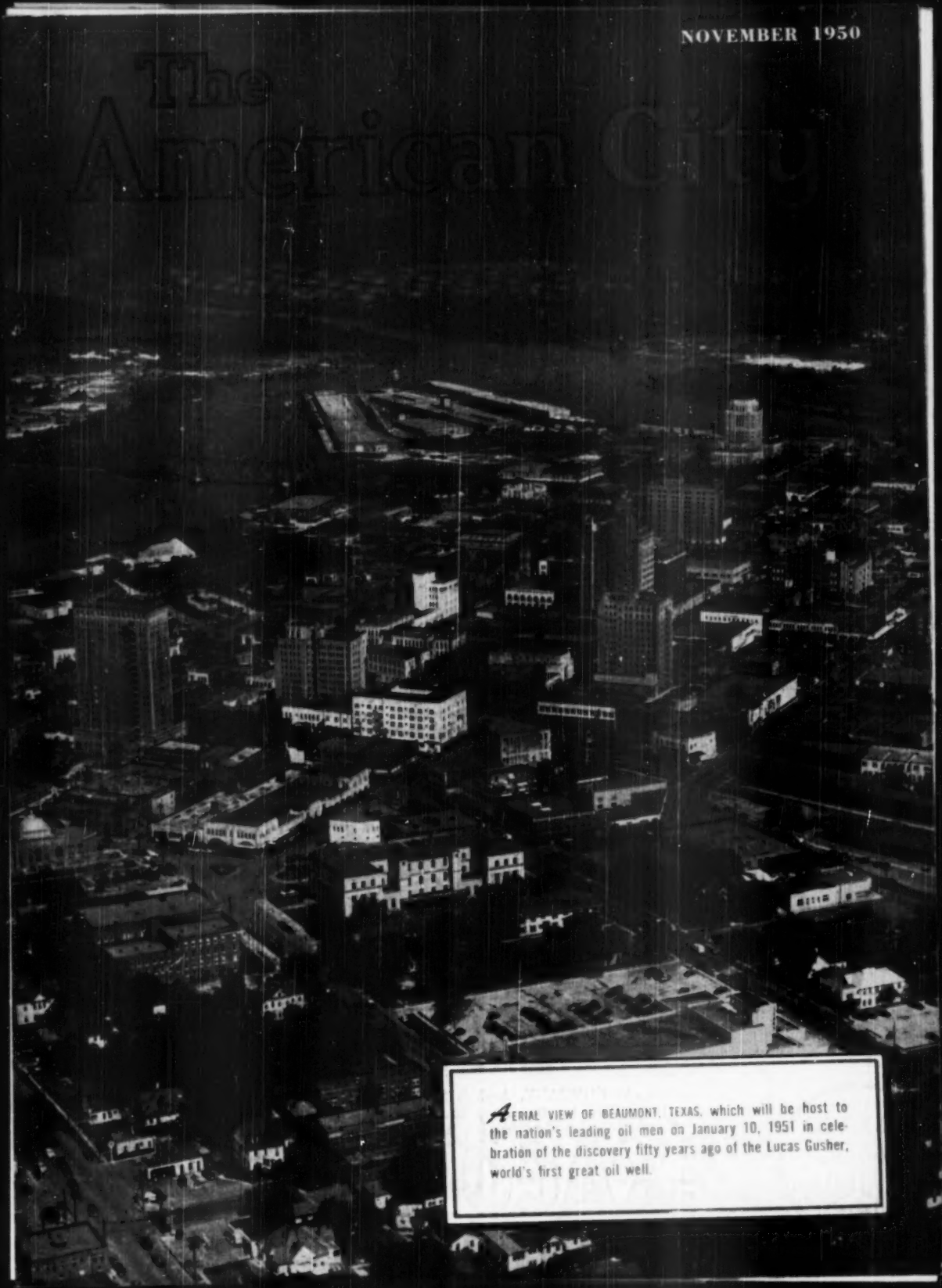
NOVEMBER 1950

The American City



AERIAL VIEW OF BEAUMONT, TEXAS, which will be host to the nation's leading oil men on January 10, 1951 in celebration of the discovery fifty years ago of the Lucas Gusher, world's first great oil well.

Two of Holyoke's principal thoroughfares, Maple Street (left) and High Street, with their new Texaco Asphaltic Concrete paving.

New streets for old

Pleasant Street, a typical Holyoke residential street, after being resurfaced with Texaco.

The Asphalt Pavement Corporation, Springfield, Mass., furnished Holyoke with the Asphaltic Concrete mix which was laid by the city. Texaco Asphalt was supplied to the contractor by the Elm Oil and Asphalt Corporation, East Meadow, Mass.

Holyoke, Mass., resurfaces worn business and residential streets with 300,000 sq. yds. of TEXACO ASPHALTIC CONCRETE

Beginning in 1948 and continuing through the following two years, city officials of Holyoke, Mass., have carried on an extensive street modernization program. As a result, a new Texaco Asphaltic Concrete wearing surface, usually two inches thick, now covers a substantial part of the community's street system.

In some instances, old concrete and macadam streets have served as a foundation for the new plant-mixed asphalt surface. On other streets, the existing worn pavement surface was removed and Texaco Asphaltic Concrete laid on the original base. Car tracks were either taken up prior to resurfacing, or were left in place and covered with three inches of new asphalt paving.

Holyoke is one more of the 1,500 representative American cities served by Texaco Asphalt paving. Such wide acceptance among cities of every size could be earned only by rugged durability and low upkeep cost.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the city official a complete range of street improvement types, from heavy - duty paving to light surface-treatment. For helpful information on all of these types, write our nearest office for copies of the two booklets, "Road Building with Texaco Asphalt by the Pressure Distributor Method" and "Texaco Asphalt Paving—Plant-mixed Types."

U. S. Route 5, within Holyoke's city limits, also has received a new Texaco Asphaltic Concrete wearing surface.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

REG. T.M.

TEXACO ASPHALT

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THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 835-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

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Over 600,000 Bell Telephone People Are Helping to Get Things Done

It takes many things, all put together, to provide good telephone service for a big and busy Nation.

There are telephone instruments and switchboards and buildings and almost endless miles of wires and cables across the country.

These are important. But they could not possibly do the job without the skill, loyalty and courtesy of more than 600,000 Bell Telephone men and women.

That is the vital human force that puts life into all of this telephone equipment and makes it work smoothly and efficiently for millions of people. That is the priceless asset of the Nation's telephone system.

Essential as they are in peace, the skill, courtesy and energy of Bell Telephone people are of even greater value in time of national defense. They are now helping the country's industries and armed forces to get things done.

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Our Municipal Notebook

Mayors Tell "Why Recreation Is Important In My City"

A UNIQUE feature of the Mid-century National Recreation Congress, held under the auspices of the National Recreation Association at the Hotel Statler, Cleveland, Ohio, October 2-6, was a discussion by a panel of mayors of public-recreation facilities and needs.

The participants were Charles Farnsley, Mayor of Louisville, Ky.; Vice-Admiral C. P. Mason, Mayor of Pensacola, Fla.; Joseph A. Hannan, Mayor of Rye, N. Y.; Anthony S. Milewski, Mayor of Spring Valley, N. Y.; and Lee Howley, Director of Law of the City of Cleveland, Ohio, representing Mayor Thomas A. Burke. Harold S. Buttenheim, Editor of THE AMERICAN CITY, served as moderator of the panel.

Unanimous agreement was evident among the panel participants as to the growing importance of public recreation as a municipal function. Mayor Farnsley, for example, expressed the need for "lots of tot lots" scattered throughout the city, and told of the "roping off and unroping" of play streets during the development of off-street play spaces in his city.

Director Howley outlined the successful cooperation now in effect in Cleveland between the city government and the Board of Education, which, by bringing together the two recreation staffs for joint action, is increasing the value of both.

Mayor Mason emphasized the importance of a square deal for Negroes in the development of a municipal recreation program, and told of a Negro Advisory Committee which is cooperating to that end in Pensacola.

Mayor Hannan pointed out that the struggle against opposition and indifference has not been fully won, and he stressed the need, therefore, for continued education as to the wisdom of liberal public spending for a carefully planned recreation program.

Finally, Mayor Milewski told the dramatic story of the transformation in the village of Spring Valley of an ugly swamp and dump into a beautiful and useful memorial park and public recreation area. A reprint of Mayor Milewski's article on this subject, as published in THE AMERICAN CITY for August 1950, and information regarding a 1,000-foot film are available on application to the Mayor's office.

MPR—A Force for Progress Or for Political Propaganda?

ARE the friends of honest and sound municipal government playing with fire in urging city officials to adopt modern public-relations techniques for "selling" the city administration to the citizens? Granted that public support is vital for getting and keeping able men in office, is there not grave danger that the charlatan and the crook will turn public-relations forces to their own anti-public ends?

These questions were suggested at the Michigan Municipal League convention in Detroit last month, in the discussion which followed an able talk on Municipal Public Relations by Henry Davis Nadig, editor of THE AMERICAN CITY's monthly department, "The City Tells Its Story."

World Affairs

Perhaps a glance at the international scene may help to find our answer. Communism has won its evil sway over many million human minds largely by diabolically clever use of propaganda. As was said by a great spiritual leader nearly two thousand years ago, too often "the children of darkness are wiser in their generation than the children of light."

Our Department of State now realizes the need for developing more effective techniques whereby the highest powers of intelligence and good will can be enlisted for shedding the light of truth and the blessings of democracy throughout the world. How foolish we have heretofore been in abdicating so largely to the children of darkness the "know-how" of influencing human behavior!

At the municipal level, if this magazine had reason to believe that the net result of popularizing public-relations techniques would be the perversion of those techniques for evil ends, the continuation of our MPR department would be unthinkable. But THE AMERICAN CITY has witnessed—and aided in—four decades of notable progress in the building and administering of finer cities, towns, and villages—and we feel sure that the great majority of our readers will continue to use in the public interest the ideas gained from month to month from the pages of this magazine.

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. *What is the recommended method of caring for refuse in market areas?*
2. *What is the cost of mosquito control on an area basis?*
3. *What is the best method of removing corrugations in asphalt streets?*
4. *List some safety measures in public-works operation that a city should observe.*
5. *Have cement joints in water-main construction any record of established use?*
6. *How extensive is the use of sewer-service charges as a means of meeting the cost of sewerage?*
7. *How often is property revalued for assessment purposes?*
8. *Activated carbon used for taste and odor control in water treatment presents an explosion problem because of its fine, dustlike particles. What can be done to control this hazard?*
9. *What is the highest daily use of water on record for general city use?*
10. *Are the wastes from cities the chief cause of stream pollution and the destruction of aquatic life?*

(Answers on page 9)

For steel, cast iron and Transite pipe. Single massive bolt simplifies installation. Immediate deliveries from stock.

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ACCE Officers and Directors—1950-51

AT THE annual meeting of the American Chamber of Commerce Executives (formerly the National Association of Commercial Organization Secretaries) held in Omaha, Nebr., September 24-27, the following officers and directors were elected for the ensuing year:

President—William H. Press, Executive Secretary, Board of Trade, Washington 4, D. C.

Vice-President—F. R. Henrekin, Manager, Chamber of Commerce, Kankakee, Ill.

Secretary-Treasurer—Stanley C. Draper, Managing Director, Chamber of Commerce, Oklahoma City 2, Okla.

Directors—Herbert G. Bailey, Jr., General Manager, Chamber of Commerce, Monroe, La.; Lester Milligan, Executive Director, Chamber of Commerce, Mason City, Iowa; James U. Nichols, Executive Director Chamber of Commerce, Chattanooga, Tenn.; Fred E. Sperling, General Secretary, St. Paul Association of Commerce, St. Paul, Minn.

Held-over directors whose terms do not expire until 1951 *or* 1952 *are*—W. N. Blanton, Executive Vice-President and General Manager, Chamber of Commerce, Houston 1, Texas; B. Colwell Davis, Jr., Executive Secretary, Chamber of Commerce of the State of New York, New York 5, N. Y.; William A. Dower, Executive Vice-President, Chamber of Commerce, Hartford 4, Conn.; Homer W. Ludwick, Executive Vice-President, Chamber of Commerce, Fargo, N. D.; Alex T. McFayden, Executive Secretary, Chamber of Commerce, Grand Rapids 2, Mich.; Russell E. Pettitt, Manager, Chamber of Commerce, San Jose 23, Calif.; Oliver W. Roberts, General Manager, Chamber of Commerce, Omaha 2, Nebr.

Vermont Tightens Control On Private Highway Signs

ALL privately owned signs will be excluded in the future from Vermont's state highway right-of-way, the State Highway Board has announced. Leon N. Brainerd, Chairman of the Board, said that the highway department plans to make a survey of all privately owned signs now inside the state highway limits. Owners will be given adequate notices to relocate such signs.

Right-of-way widths vary considerably in Vermont, but in most places where new highways have not been constructed recently, it is approximately 50 feet. The department's district highway commissioners will provide information regarding the extent of the state highway property at any particular place. Outside the highway right-of-way, advertising signs are under the jurisdiction of the Secretary of State.

Chairman Brainerd explained that Vermont is a leader in controlling billboards, but at the present time the small, generally harmless kind of private signs are rapidly becoming a problem.

"Our roadsides have literally become a battleground of privately owned signs competing for the attention of motorists," Mr. Brainerd said. "Since these signs are mainly of the directional type which do not require a state license, the only control is to force them back outside our comparatively narrow right-of-way limits.

Christmas Seal Time—November 20 to Christmas

THIS year, as usual, many municipal officials will not only be buying Christmas seals for their personal use,

but will help to stimulate the sale of the seals throughout their respective communities.

As is generally known, the annual Christmas Seal Sale finances the local, state, and national tuberculosis-control work of the National Tuberculosis Association and its 3,000 affiliates throughout the United States.

Of the funds thus raised, approximately 75% are retained by the local tuberculosis associations. The balance is forwarded to the state association which, in turn, allocates 6% to the national. Thus, 94% of Seal Sale funds are used to support tuberculosis-control programs within the state where the money was contributed.

Hoboken Praises Public Housing

THE Mayor and City Commissioners of Hoboken, N. J., are engaged in a campaign to bring to the attention of new or expanding industries the many advantages of Hoboken for large-scale industry.

A full-page advertisement in the Real Estate Edition of the *Hudson Dispatch* of September 23, 1950, features, as one of the major advantages and facilities of Hoboken, a statement that:

> Hoboken is proud of its top-ranking position among American municipalities in expediting plans for providing modern, wholesome, and attractive federally aided housing for its residents who qualify for the privilege of occupancy. The local Housing Authority is rapidly completing plans for the construction of approximately 700 living units which will provide adequate housing that will be within the reach of families who prove eligible for tenancy.

"This action of the Hoboken governing body," said John A. Kervick, Director of the New York Field Office of the Public Housing Administration, "reflects the widely growing appreciation of local governments and private industry of the effect of wholesome community living conditions upon the morale of labor. Just as modern industry provides the employees with clean factories in pleasant surroundings, so do workers appreciate a city free from slums and having decent homes in good neighborhoods for those families whose meager incomes do not make them possible prospects for the private speculative builder."

Council Manager Government Stigmatized As Undemocratic

THE AMERICAN CITY regrets to record the adoption by the League of Cities of the Third Class in Pennsylvania of a resolution characterizing the council-manager plan of municipal government as "contrary to the democratic principles for which we are now fighting."

This action was taken at the League's annual convention, held in York, Pa., on September 28-30. At the same session the League took what was certainly undemocratic action in voting down a resolution by proponents of home rule for the Third Class Cities. This resolution, if adopted, would have put the League on record as being democratic enough to concede that the voters in Pennsylvania municipalities ought to have an opportunity to express themselves at the polls as to the type of local government they desire; and would have requested the Local Government Commission to present to the 1951 session of the Pennsylvania Legislature an act to enable any city of the Third Class to select by vote of its people the council-manager plan of city government.

THE AMERICAN CITY has many good friends among the local officials and civic leaders of Pennsylvania, and cannot believe that the action recorded above represents the prevailing view of informed friends of efficient municipal

BE READY...

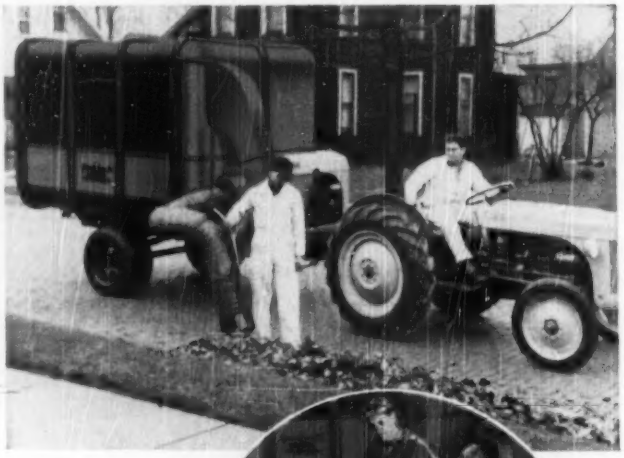
...for the leaf collection problem

AVOID CLOGGED SEWERS AND SLIPPERY PAVEMENTS WITH Good Roads MACHINERY LEAF COLLECTOR

If you are ready with a Good Roads Leaf Collector when the leaves are falling, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

The two-man-operated Leaf Collector inhales leaves and in the process shreds them into small particles. These chopped leaves are known as "COMPOST," a natural fertilizer which will be begged for by many citizens, for use in their gardens.

This feature is important in cities where there is too great a distance to travel to the dumping site.



FEATURES

FLEXIBLE INTAKE HOSE
easily maneuverable into driveways, under and around autos, in gutters, around corners and catch-basins and under cross-walks.

RUGGED ROTOR BLOWER ASSEMBLY
inhales and pulverizes wet or dry leaves in one operation.

HYDRAULIC SYSTEM
operates independently . . . makes hook-up and dumping almost instantaneous.

SPACIOUS LITTER CARRIER
holds blocks and blocks of pulverized leaves and debris.

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The rubber tired snoot for all purpose leaf collecting (circular illustration) and the simple Hanger Arm unit (top) are standard equipment.

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democracy in the Keystone State. This magazine will, however, be glad to make its columns available for a statement to the contrary if a spokesman for the opinion that prevailed at York wishes to present an explanation of the anti-council-manager point of view.

Industrialist Urges Corporations to Create Non-profit Foundations

A PLAN for making recreation available to communities, large and small, through non-profit foundations set up by local corporations, was submitted on October 3 at the National Recreation Congress, in Cleveland, Ohio, by Thomas R. Mullen, President of the Lehigh Structural Steel Company, Allentown, Pa.

Mr. Mullen pointed out that adoption of such a plan by community companies would tend to increase the funds available for deserving causes such as recreation, as well as re-affirm the American people's belief in the traditional American principle of doing things themselves instead of letting the government take over more and more of their responsibilities.

Cooperative Contracts Cut Costs of Public Service

COOPERATION is paying off in dollars saved for several suburban communities in the metropolitan area of Chicago.

According to an article in the current issue of *Municipal Finance*, quarterly publication of the Municipal Finance Officers Association, cooperative contracts among the villages on Chicago's North Shore have made it possible for these communities to obtain the benefits of large-scale operations and specialization without the necessity of breaking down rigid political boundaries. Such contracts among the neighboring satellite communities that customarily surround a large city offer an ideal solution to the problem of performing needed public service at a cost within the ability of the cities to pay, it is pointed out.

Here's how one North Shore village—Winnetka — provides services to its neighbors under a cooperative contract:

Police radio service is provided for Northfield for the sum of $25 per month. For this fee, Winnetka transmits all radio messages to the Northfield squad car and answers their telephone when it is not manned. However, the contract does not provide for responsibility for police action.

Complete fire-protection service is provided for the village of Kenilworth for a monthly standby charge of $300, plus $80 for each call answered. For fire-insurance-rating purposes, the two communities are considered as one, and a low classification prevails. This contract, averaging about $5,000 annually, provides Kenilworth with far more adequate fire protection than it could furnish itself for twice the amount.

Kenilworth is permitted to dispose of its waste in the Winnetka sanitary fill for the charge of 33 cents per cubic yard.

Three general-type health services are also provided to neighboring communities. School nursing service is provided in a school located in an unincorporated area. Four communities with a combined population of approximately 30,225 receive milk-inspection service at a per capita cost of 20 cents annually. Complete health service, including vital statistics, contagious-disease control, clinics, public-health nursing, and food-shop inspection is carried on for five municipalities with a combined population of 23,000. The present cost of this program is $1.12 per capita.

In order for cities to operate successfully under cooperative contracts, certain basic requirements are needed: legal authority to enter into joint contractual agreements; entering into a joint contract must not lower the level of service in any of the participating municipalities; the greater the similarity of political characteristics between the participating communities, the greater the opportunity for success; and uniform ordinances, particularly in the case of health services, are a must.

The American City Quiz

ANSWERS TO QUESTIONS ON PAGE 5

1. Baltimore finds that the most satisfactory method is to use big portable containers. Under the direction of W. P. Fannon, Bureau of Sanitation, the city has adopted the use of 28 10-yard Dempster Dumpster containers and three truck-hoisting units for the exclusive use of these areas. Each merchant is assigned to a definite container and told to put trash in it. Merchants are glad to use them.

2. Toledo, Ohio, has found that the cost runs to $1.50 per person per year in taxes for an area covering six townships. Control measures include catch-basin spraying on a once-a-week basis and area fogging whenever tests indicate that it is needed. Dr. B. Bruce Brockway, director of the work, reports that a man on a Jeep can spray 375 to 400 manholes and catch basins per day. The Toledo Sanitary District uses a Tifa fogger, a Bean duster, a Root duster and a Buffalo Turbine duster.

3. Charles E. Brokaw, Cincinnati's Superintendent of Highways, reports that corrugations can be removed by a heater planer. His tests of the Spearwell planer show that it can operate at a rate of 30 to 60 feet per minute, can plane a strip 50 inches wide in one pass, and can cut a maximum of ½ inch. Generally, the work requires a seal coating as a final measure. His costs run 27 cents per square yard.

4. W. J. Deegan, Jr., City Manager, Superior, Wis., has a safety program that has brought insurance costs down by more than $3,000 annually. He started in the city garage, and required racks and storage facilities for equipment and supplies. He installed electrically operated garage doors to avoid back strains. He put the gas tanks on the outside of the cabs to avoid gasoline fumes. He placed a 30-gallon limitation on garbage cans and supplied the householders with wood racks to keep the cans at least a foot off the ground. He installed steps on the trucks big enough for overshoes, low enough for an easy step with heavy winter clothes.

5. C. F. Wertz of the Miami (Fla.) Water and Sewerage Department, reports some 75 miles of cement joints, the first being put in use in 1932. G. W. Pracy, General Manager of the San Francisco Water Department, states that cement joints have been used since 1917 and finds that they survive vibration well. Des Moines, Iowa, has used cement joints since 1929, according to Dale Maffit, General Manager.

6. According to the International City Managers' Association, some 250 cities of over 10,000 inhabitants, and 199 cities with populations between 5,000 and 10,000 employ sewer-service charges.

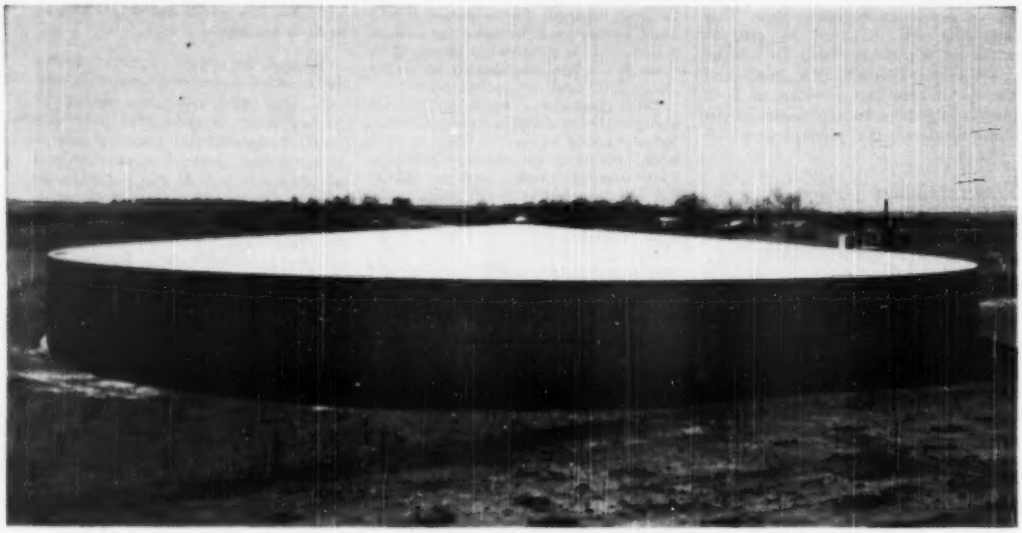
7. According to the National Association of Assessing Officials, it is required to be revalued annually in 28 states, biennially in six states, every four years in six states, not oftener than four years in two states, every six years In one state, every eight years in one state, and from five to ten years in four states.

8. In the smaller plants, the activated carbon is received in bags, and therefore would present no problem if the bags were left sealed until ready for use. In large plants, the trend is to use the material in bulk. Havens and Emerson, Cleveland consulting engineers, have controlled the difficulty in that city's new Nottingham filter plant by the use of Kidde Multizone carbon dioxide protection. Distribution piping is placed to release the gas over the carbon either through a manual release, or a release activated by heat or smoke.

9. Phoenix, Ariz., last year recorded a high of 400 gallons per capita per day during the summer months. Much of this is attributed to air conditioners using water evaporators.

10. Not according to Harold Kemp, Director of Sanitary Engineering, Washington, D. C. Soil erosion, he states, is equally bad and often worse. Soil conservation, he estimates, could reduce turbidity by 75% in the Potomac River and save Washington, D. C., $50,000 per year in water-treatment costs.

Send in your suggested questions with the answers on municipal topics for use in this feature. The AMERICAN CITY will make a small payment for each question accepted.



Spartanburg Adds New Reservoir for Better Water Service—Today and Tomorrow

The Water Commission at Spartanburg, South Carolina, knows that the welfare and growth of a community depend a great deal on proper water service and storage facilities. The Commission "believes its duty is to be a step ahead of the demands of new industries and unusual expansion programs and be able to provide an immediate supply of pure water."*

That's why this progressive Southern community included the 3,250,000-gallon Horton welded steel reservoir shown above in its recently-completed program of water system improvements. The water works system at Spartanburg now has a total of 10,000,000 gallons of storage. Other improvements included additional mains and fire hydrants. The system now serves 9,200 customers using an average of 7,000,000 gpd at rates ranging from 3,000,000 to 12,000,000 gpd.

Many other municipalities are finding that Horton steel reservoirs frequently make it possible to increase the effective capacity of the system at a fraction of the cost of expanding the entire distribution system. Welded steel tanks do not crack and develop leaks even if there is uneven settlement. The joints are made water tight and stay that way. Maintenance costs are low too, for regular painting inside and out, will keep a steel tank in good condition for years.

Horton welded steel reservoirs are built in capacities up to 10,000,000 gallons. When you plan improvements in water storage facilities, write our nearest office for information and quotations.

Other Types of Horton Water Storage Tanks

- Horton Ellipsoidal-Bottom Elevated Tanks . . . supply gravity water pressure. Built in capacities from 15,000 to 500,000 gallons. Widely used in municipal water systems and at industrial plants for fire protection.

- Horton Radial-Cone Bottom Elevated Tanks . . . available in capacities from 500,000 to 3,000,000 gallons. Utilizes a design which makes it possible to build large capacity tanks which do not have excessive range in head.

- Horton Watersphere . . . newest addition to the Horton line of elevated tanks. Available in standard designs from 25,000 to 250,000 gallons.

*Quotation taken from a report of the Spartanburg Water Commission.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 ..... 2114 Healey Bldg.
Birmingham 1 ..... 1502 North Fifteenth Street
Boston 10 ..... 1002—201 Devonshire St.
Chicago 4 ..... 2127 McCormick Bldg.
Cleveland 15 ..... 2236 Guildhall Bldg.
Detroit 26 ..... 1501 Lafayette Bldg.
Havana ..... 402 Abreu Bldg.
Houston 2 ..... 2101 National Standard Bldg.
Los Angeles 17 ..... 1503 General Petroleum Bldg.
New York 6 ..... 3308—165 Broadway Bldg.
Philadelphia 3 ..... 1616—1700 Walnut Street Bldg.
Salt Lake City 4 ..... 501 West 17th South St.
San Francisco 4 ..... 1533-200 Bush St.
Seattle 1 ..... 1301 Henry Bldg.
Tulsa 3 ..... 1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Branch Payment Stations For Water Bills

IN large cities, bill-collection stations have been established that expedite payment to the water utility and serve as a convenience to the customer. This work was discussed by a panel before the American Water Works Association annual meeting in Philadelphia recently.

Wendell R. LaDue, Chief Engineer and Superintendent of the Akron (Ohio) Bureau of Water and Sewerage, reported that certain centers have been established through Akron in business houses where the customer can pay his water bill. The collection agency adds a fee for the service which the customer pays. This fee amounts to 5 or 10 cents per bill. He stated that 22% of the bills are paid in this way.

G. E. Arnold, Director of the San Diego (Calif.,) Water Department, reported that his city has contracts with 16 collection agencies in branch offices of the San Diego Gas and Electric Company, drug stores, variety stores, banks, and real-estate offices. Payment to the collection agency is 6.8 cents per bill.

St. Louis Pipe-Lining Program Salvages Water Lines

RECENTLY we have had to recondition certain water-supply lines. These were laid in 1929 and their sizes varied from 36 to 62 inches. They were steel lines, part hammerweld and part riveted, made of 7/16- and 9/16-inch sheets. Part were laid through marshy soil and consequently became badly pitted. Part were laid in higher sections of ground where electrolytic action was strong.

Much of the pitting took place under one of the main highways. The public disliked having their highway torn up while these lines were being repaired, and the Water Division disliked tearing them up. So the problem that we had to solve was whether to tear the pipe out and replace it with new, or to salvage it with a cement lining.

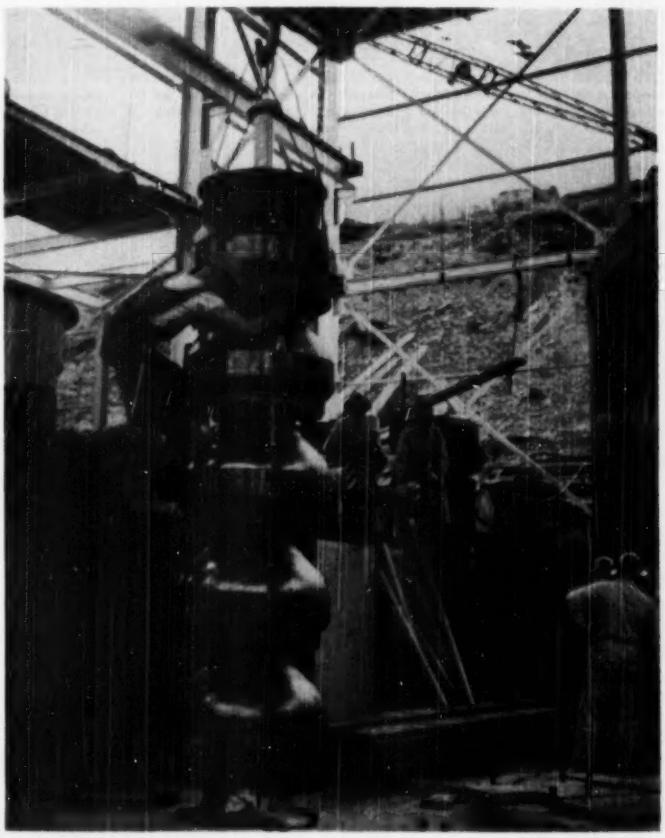
We decided on the latter. In 1947, the Water Division awarded a contract to the Centriline Corporation, of New York City, to line 16,897 feet of 62-inch pipe at $4.20 per foot, and 6,168 feet of 36-inch at $3.25 per foot. The Water Division made all excavations and operated the necessary valves. The contractor cleaned, repaired, and lined the mains.

The results were encouraging enough so that in 1949, the Division awarded a second contract to the same company for cleaning and lining 13,852 feet of 36-inch pipe at $3.87 per foot, and 3,141 feet of 49-inch at $4.20 per foot, another for 19,820 feet of 60- and 62-inch pipe at $4.43 per foot. Then in 1950, the same company was awarded two more contracts; one for 26,837 feet of 60- and 62-inch, and the other for 724 feet of 48-inch. The price for both was $4.30 per foot. The last contract, which was awarded this year and which has just been finished, was for 19,850 feet of 60- and 62-inch pipe.

On the 60- and 62-inch pipe, the Division discovered that it had a flow coefficient of 124 before cleaning and 140 after cleaning. Thus, the lining has increased the capacity of the pipe, has stopped the recurring pipe leaks, and has made the lines able to serve for another 50 years.

THOMAS J. SKINKER
Commissioner of Water
St. Louis, Mo.

Largest Deepwell Pump



A big five-stage turbine pump is eased into place at the Chelsea pumping station, which is serving as New York City's emergency Hudson River supply. There are five of these pumps, and they are believed to be the biggest that have ever been made. A complete story of their installation appears on page 99.

ALLIS-CHALMERS

Design Simplicity

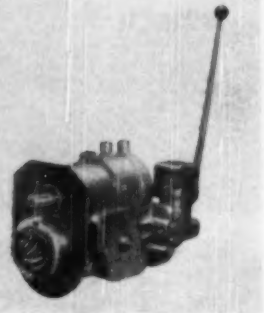
Another Big Reason Why HD-5 Leads In Tractor Output

Simple unit assembly is another important reason why the HD-5 is low in total down time required for servicing and maintenance — why it is tops in output per day, per month, per season.

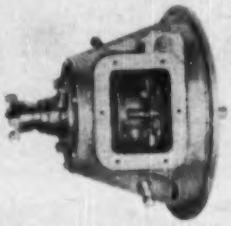
When maintenance is necessary, each assembly is readily accessible for attention. The HD-5 is designed so that each major unit may be easily removed and repaired or replaced *right on the job* without removing unrelated parts. The time and labor saved means substantial increases in the HD-5's over-all output. Remember — a tractor makes money for an owner only when it's working.

Get the full time-saving service story on the more simply designed HD-5 from your Allis-Chalmers dealer . . . NOW! Ask him, too, for a practical demonstration . . . a demonstration under your own operating conditions. "Seeing Is Believing."

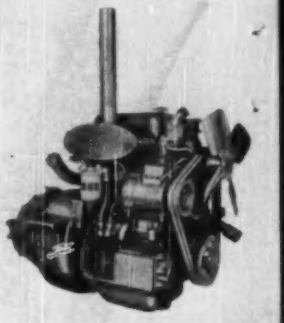
Each steering clutch can be removed independently and without removing final drive pinion or bevel gear.



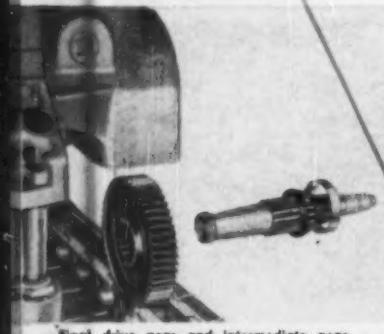
Transmission can be removed as a complete unit without removing clutch, final drive or bevel gear.



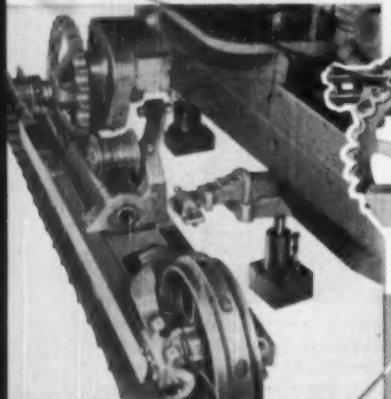
Clutch assembly can be removed without disturbing engine or transmission.



Engine can be removed without disassembling clutch.



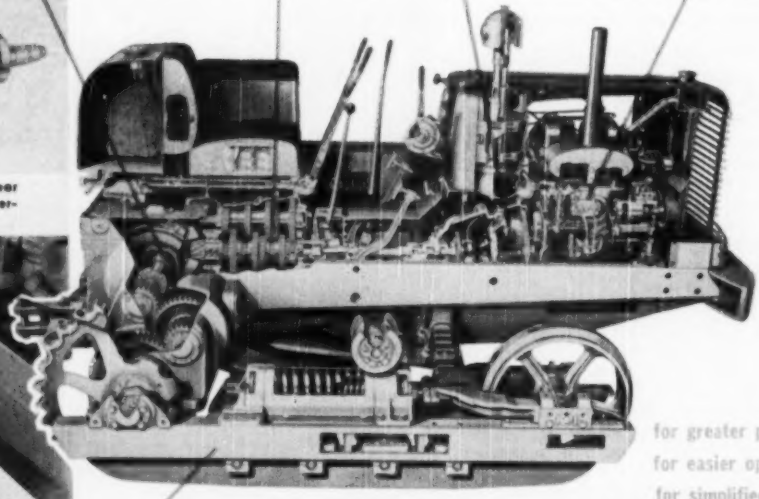
Final drive gear and intermediate gear can be removed without disturbing steering clutch.



Truck frame can be dismantled without removing final drive, sprocket or equalizer spring.

MORE REASONS FOR HD-5 TOP PERFORMANCE

- Exclusive Positive Seal 1,000-Hour Lubrication of truck wheels, track idlers and support rollers
- 11,000 lb. of Balanced Weight
- Greater Operator Comfort
- 2-Cycle Diesel Engine — 40.26 drawbar hp.



for greater production
for easier operation
for simplified servicing

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Street Cleaning and Snow Removal

Ten Plows Are Always Ready in Bloomfield, N. J.

By JOSEPH W. OBREITER
Town Engineer
Bloomfield, N. J.

THE Bloomfield, N. J., snow-removal program is geared to handle the average 4-inch snowfall that we have here without any particular difficulty. The only snow that really held our boys up for a while was that 27-inch sleeper which dropped on us within 4 hours two years ago, just after Christmas. We would have been able to handle that one too, if it weren't for the fact that the weatherman kept throwing us off guard with his forecast of "light snow flurries, clearing in the afternoon."

We always have 10 plows ready for work: all snow is removed, starting in the business area, with the help of two SnoGo loaders and hired trucks. We have to use some hand-work at street crossings. All employees of the Public Works Division are called either by phone or with the help of the Police Department when two inches of snow have fallen.

All our plows are truck-mounted, fitted to 3-ton White trucks. Contractors stand in readiness with an unlimited number of trucks for either plowing or snow removal.

Our work starts in the business centers, and from these points or hubs, we branch out to the residential zones. There are six business centers totaling about five curb miles.

We use salt, sand and ashes, either mixed or separately, for ice control. The concentration is about three 100-pounds of salt to 2 cubic yards of cinders.

The snow is disposed of on vacant property and in some cases on playground areas.

How Larchmont, N. Y., Gathers Leaves

1. The leaf-blower used in Larchmont, N. Y., can scoop up leaves handily when they are strung out like this . . .

2 . . . or gather them in when they are a big pile like this.

3. The blower operates under the direction of Arthur Richards, Village Engineer. It discharges into a special steel box holding 12 cubic yards built by Mr. Richards' public-works forces. Mr. Richards will send any city official a copy of the drawings he used to build the box. He tows the leaf-blower from an offset hitch behind a truck so that the receiving nozzle of the blower extends to the left of the truck body, and the driver can see how the loader operates.

Barber-Greene

Now MECHANICAL SNOW REMOVAL FOR SMALL CITIES, TOWNS and INDUSTRIAL PLANTS

- Over-all height—12'3"
- Self-propelled, self-feeding
- One-man operation — no special skill required
- Side discharge loading for fast loading — no backing
- Down-to-pavement clean-up of up to 5 cubic yards per minute!

SELF-PROPELLED • SELF-FEEDING
5 YARDS PER MINUTE

Converts to an All-Weather Bucket-Loader at Negligible Cost!

NOW IS THE TIME TO CHECK THESE FEATURES!

Plan now to save the money formerly wasted on slow, inefficient machine and hand removal of snow. Send for complete information on Model 522 Snow Loader . . . Model 548A Snow Loader (up to 20 yards per minute).

Use this coupon...

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Barber-Greene Company
Aurora, Illinois
☐ Model 522 ☐ Model 548A
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Company .....
City ..... Zone ..... State .....

Street Construction & Maintenance

Massachusetts Leading In Rubber-Asphalt Roads

MASSACHUSETTS apparently is leading the nation in the adoption and use of rubber in asphalt streets.

A 5½-mile, 4-lane "rubber" highway, the longest of its kind in the world, was formally opened to traffic recently by Commissioner of Public Works William F. Callahan, and other state highway officials. Heretofore, the use of rubber in roads has been limited to test sections ranging from 100 feet to 1½ miles.

The new "rubber" highway is on the old Boston Post Road, now U. S. Route 1, the main highway running from Maine to Florida. It extends from the town of North Attleboro, Mass., south to the Rhode Island state line. It was laid over an old and badly patched concrete base at an approximate cost of $200,000, and is constructed of a combination of asphalt and a new meltable rubber compound called Surfa-Sealz, developed by the United States Rubber Company. Average quantity was 14 pounds per ton of hot mix.

"For several years now the Commonwealth has been experimenting with rubber as a means of reducing heavy maintenance costs on its highways," Mr. Callahan said, in commenting on the new road. He continued:

Last year we found what we wanted. A half-mile test section of Route 1-A near Wrentham was resurfaced with a combination of asphalt, stone, and a new meltable rubber compound. Although last winter was one of the hardest on roads in Massachusett's history because of frequent freezing and thawing, this pavement developed no signs of frost damage, cracking, or buckling. A straight asphalt test strip, laid down adjacent to it, is already showing signs of cracking and wear.

We now believe that rubber in combination with asphalt will bring bona fide savings to Massachusetts taxpayers and we are expanding its use wherever and whenever possible. The new "rubber" highway along Route 1 is only the first step. Current resurfacing plans call for more than 20 miles of rubber-asphalt pavement. Installations are scheduled for Route 3-A at North Weymouth, Route 1-A at Westwood, and Route 37 at Braintree and Adams Avenue, Fairhaven.

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PHOTO COURTESY OF UNITED STATES RUBBER COMPANY

Workmen install a section of the longest "rubber" highway in existence, a 5½-mile stretch in the Commonwealth of Massachusetts, which runs along Route 1 from the Rhode Island line north to the town of North Attleboro.

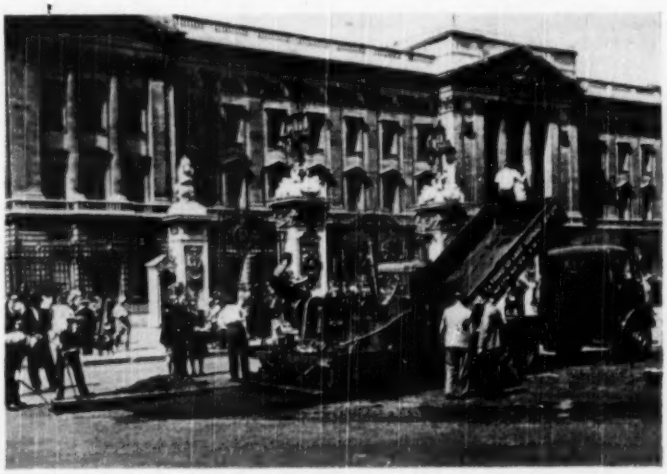
Oil Stops Salt Damage to Concrete Pavements

OIL cast on portland-cement concrete seems to be the way to end a tough maintenance problem, according to research in the New York State Department of Public Works. The studies indicate that a light coating of oil sprayed on such pavement will make it resistant to scaling caused by the action of chloride salts.

On the basis of these tests, the State of New York is now using a waterproofing compound mixture consisting of equal parts by volume of a petroleum distillate oil with an approximate S.A.E. rating of 5, and a mineral solvent similar to that used in the dry-cleaning industry. This mixture is applied to all new clean and dry concrete pavements by means of commercial distributors at the rate of 17 square yards per gallon. It is felt that two such applications are necessary to accomplish the purpose. The rate of the second application may be diminished depending upon the absorptive properties of the surface. With good temperature and atmospheric conditions, oil is absorbed quickly.

One of the many projects which has received this waterproofing treatment was the Taconic State Parkway constructed during 1949. The work was directed by B. D. Tallamy, Superintendent of New York State Department of Public Works. The original pioneering research was initiated and conducted by Ira Paul, Director of the Department's laboratory.

Royal Street Surfacing



Among the last steps required to pave London's Mall, facing Buckingham Palace and Queen Victoria's Monument, was the work done immediately in front of the Palace. Notice the fur-busbied Coldstream Guard in background. The finisher being used was made in England at the plant of Barber-Greene-Olding, Ltd.

Sewerage and Sewage Treatment

How Jasper Obtained Kitchen Disposers on a City-Wide Basis

TWO YEARS ago, Mayor Herbert Thyen and the City Council of Jasper, Ind. (population 6,000), began to explore the possibilities of the water-borne disposal of food wastes through the municipal sewer system and the new sewage-treatment plant. They were instructed in the possibility of saving between $13,000 and $18,000 a year in future garbage-collection costs, and, what is more important, in eliminating the disease-breeding garbage can.

In the course of time bids were solicited from the disposer manufacturers, and different makes of machines were tested. A bid by the General Electric Supply Corp. of Louisville, Ky., to supply G-E Disposalls was tentatively accepted.

Although Jasper had authorization to pay for the disposer installation with municipal bonds, Mayor Thyen and the City Council preferred to have each householder buy his own disposer. Their job then was to sell the benefits—to the community and the individual—of the new method of handling garbage to each home owner. Unless 60% of the community registered approval by signing orders for disposers, the city fathers agreed, the plan would fall through.

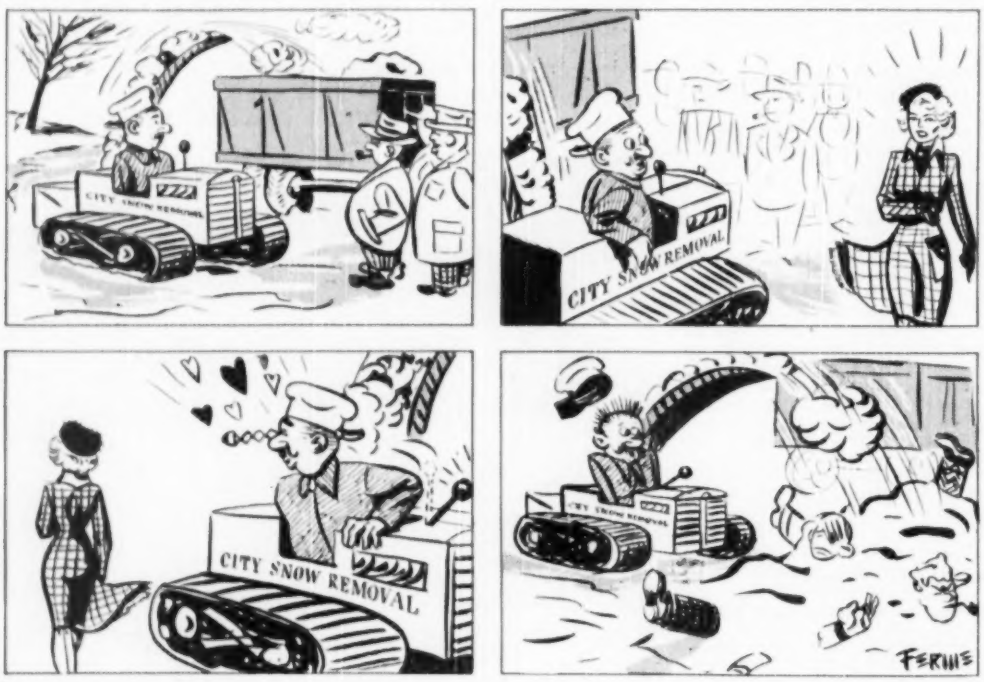
By the middle of January only about 40% of the town's householders had signed up. Both of the Jasper banks had agreed to make extremely liberal credit arrangements available to purchasers who did not want to lay out the money in one lump sum. The DuBois County Daily Herald, which had been behind the proposal from the start, had gone full out with publicity support. There was no organized opposition, yet orders at the city office were just not coming in.

Mayor Thyen took his case to the Junior Chamber of Commerce. The Jaycees passed a resolution formally supporting the proposition and urging Jasper citizens not to let the community down. This resolution, in all essentials, was adopted by the all service clubs in the community.

But that was only the start. Jerome W. Schneider, Jaycee president, and Allie Sermersheim, City Clerk and Chamber member, obtained the list of all the Jasper citizens who had not yet signed. Each of the Junior Chamber's 50 members was given a group of names, preferably of the people he knew best. Then for a couple of hours every night and all day on weekends, each member called on each person on his list and personally solicited his signature on an order blank.

Within three weeks, largely because of the doorbell-ringing technique of the Jaycees, more than the required number of names had signed up. Installation of the kitchen disposers was completed in August 1950. Jasper overnight became famous for its progressive step forward in municipal sanitation—one which will be copied by many other communities within the next few years.

JEROME W. SCHNEIDER
President
Junior Chamber of Commerce
Jasper, Ind.

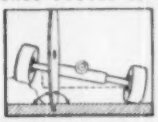


SAW CONCRETE OR ASPHALT WITH AMAZING

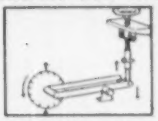
Clipper "DOES RIGHT THEM" CONCRETE SAWS

Saw 12 feet per minute in Asphalt or 5 feet per minute, 1 inch deep, in cured limestone Concrete. With Clipper you can saw up to 6½ inches deep. Concrete Sawing is Practical and Profitable because Clipper Concrete Saws are Built with the experience of World's Largest Manufacturer of Masonry Saws.

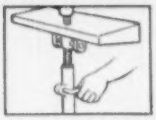
Experience Proves A Concrete Saw Must Have These Clipper Features:



1. Clipper "No Bind" Floating Three Point Suspension Automatically protects blade.



2. Positive Screw Feed Instant control raises or lowers blade smooth, easy.



3. Adjustable Depth Lock Set this handy stop for whatever depth desired.

4. Patented Spray Control Its value is measured in increased Blade Life.

Model C-130 Power Packed

4 wheel — Perfect Control, tips back and turns on a dime

THREE ENTIRELY NEW MODELS

FAST — EFFICIENT — ECONOMICAL

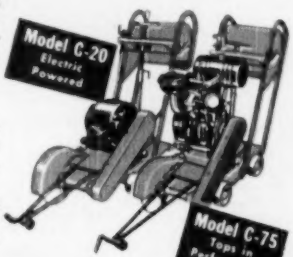
Clipper Concrete Saws ***CUT*** through the toughest concrete, wherever patches, trenches, openings or contraction joints are needed.

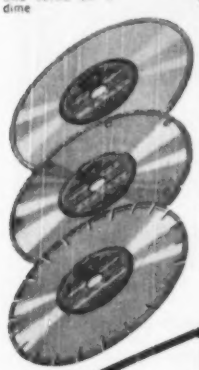
SAW BEFORE YOU BREAK...

Eliminate radial cracks. Stop spalling. Have perfect jobs. Architects, Consulting Engineers, City and State Engineers are solving their problems by specifying "Saw before Breaking"

Utility Companies enjoy lower costs while improving Public Relations. Concrete Contractors praise the ease of getting the tough job done with new found profits!

Patent Numbers 2338318, 2458113, 2492894 — Other Patents Pending — Printed in U.S.A.





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PATCH Saw clean straight lines, break smooth — Size and shape make no difference

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CONTRACTION JOINTS Highways, Streets, or Building Floors precision cuts eliminate hand tooling

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PROMPT BOX ALARM *averts* CONFLAGRATION

PROPERTIES AT RISK

Miss Kompa shows Fire Chief Dell how she sent the alarm.

DEPARTMENT OF PUBLIC SAFETY
BUREAU OF FIRE

CITY OF READING, PENNA.

The Gamewell Company
Newton Upper Falls
Massachusetts

Gentlemen:

In view of the unique circumstances attending a fire which occurred on Sunday, March 26, I am desirous of bringing it to your attention. The fire started in a pile of lumber at the rear of the Sackett Music House, 630 Penn St., and spread to the rear of the building and the Reiss Furniture Company, next door. It was discovered by Mrs. Elizabeth Brensky and Miss Dorothy Bowen, employees of the Reiss Furniture Store, 637 Penn St., who were working although the store was closed.

Mrs. Brensky found the telephone out order, the wires having been destroyed by the fire. Miss Kompa then went immediately to the Gamewell Fire Alarm Box at Eighth and Penn Streets and sent the alarm. Properties having an aggregate value of probably half a million dollars were at risk, but no extinguishment by fire or if quicker after arrival at the scene with a fire loss of only $1,250.00.

The prompt action of these ladies in sending the alarm, and the fact that a public fire alarm box was so near at hand, undoubtedly averted a conflagration.

Yours very truly,

Edward C. Dell
Chief, Fire Department

ESSENTIAL PROTECTION

A fire alarm box near every fire hazard is necessary to adequately protect the city.

When fire occurs use the nearest box promptly —it is the best method.

THE GAMEWELL COMPANY

In Canada: Northern Electric Company, Ltd., Belleville, Ontario

Newton Upper Falls 64, Massachusetts

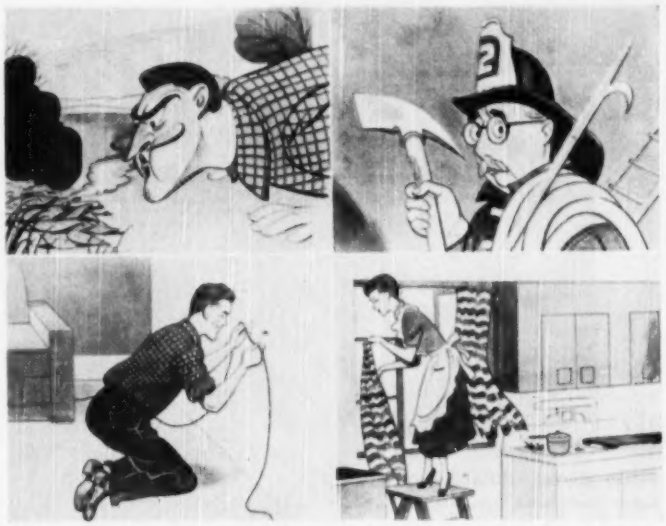
Public Safety

New Fire Prevention Film

THE TORCH is the latest fire-prevention film—there are 22 to date—produced and offered for showing anywhere in your town by the National Board of Fire Underwriters. A 16-mm color film lasting only about 10 minutes, it amuses while it infallibly puts the finger on the pet carelessnesses of humans who should know better.

Such "harmless" little violations as running to the telephone no matter what's cooking; using gasoline—just this once—instead of a safe cleaning fluid; smoking in bed, and overloading an electric circuit, are depicted in all their innocence. But in each case there is the immediate effect; the price paid in terms of a lost home, life, lumber yard, or forest acres. *The Torch* is the evil genius who appears at the elbow of the potential violator.

The semi-animation technique makes the film suitable for television broadcasting, and it has already been shown or is about to be shown in 14 of the largest cities. Fire departments, departments of education and other municipal departments are invited to book the film through the National Board of Fire Underwriters, 85 John St., New York, N. Y.



"I know the danger of forest fires," said the person discarding the cigarette, "but this is a concrete road and it won't burn." But *The Torch* makes the most of it. The meek character at the upper right is a fire-prevention enthusiast, but the film shows results of his smoking in bed. The "home electrician" hangs an electric cord over a nail; the lady leaves this dangerous situation to answer phone.

Voice-Amplified Fire Alarms

THE standards of the National Board of Fire Underwriters on municipal fire-alarm systems require each fire station to receive alarms over two circuits. One of these must be a coded alarm circuit, and the other may be either a coded circuit, a voice-amplification circuit or a radio channel. There must also be a telephone circuit, department-owned or leased or rented from the telephone company.

If voice amplification is to be used as the primary notification to fire companies and they are to depend on it for response to fires, assurance of its serviceability is essential. This means that the circuit should be all metallic, normally closed and supervised; supervision must include those secondary features on which amplification depends so that the operator and the man on watch will know that the system is operating. Where important features can not be supervised, test operation hourly will be required.

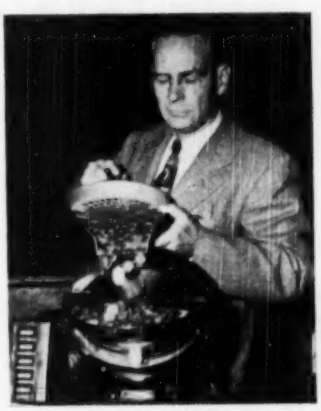
If loud-speakers are to be provided and used for the transmission of alarms, received either by telephone or by box, definite provisions must be made by the proper authorities to obtain and use only operators who have had special examination and training as to their enunciation. Also orders must be explicit—in addition to the house number and street address, there must be given the nearest street intersection or the nearest box number, either actual or dummy.

Counting Coins in New Orleans

C. RAY JONES, Deputy Commissioner of Finance of the City of New Orleans, is a firm believer and advocate of the automatic coin-handling devices. The photograph shows him using a Brandt sorter and counter in the Finance Department of New Orleans.

Sometimes a taxpayer will come in with a bag of miscellaneous coins of various denominations. The automatic coin-handling machine comes to the rescue. It assorts the coins and counts them in one operation.

The machines are particularly appreciated at this time as the City of New Orleans has installed 800 Duncan automatic parking meters. Each day the collectors bring in their net returns. The machines go to work, and in a few minutes the day's collections are accounted for. Commissioner of Finance Lionel G. Ott has installed modern machines and devices throughout the Department of Finance.



C. Ray Jones, who is the Deputy Commissioner of Finance of the City of New Orleans, is counting the coins with a Brandt sorter and counter in the New Orleans finance department.

EFFICIENCY UP COSTS DOWN

Other Places to Reduce Costs

Reduce chassis upkeep costs by lubricating with *Texaco Marfak*. It stays in the bearings, gives longer-lasting protection against wear and rust. *More than 350 million pounds of Marfak have been sold!*

Reduce wheel bearing maintenance costs with *Texaco Marfak Heavy Duty*. It guards against rust and wear for extra hundreds of miles. No seasonal change necessary.

Reduce costs of crawler track maintenance by lubricating with *Texaco Track Roll Lubricant*. It seals out dirt and moisture. Gives lasting protection.

when you lubricate engines with TEXACO URSA OIL X★★

You'll get a bonus of pep and power from your heavy-duty gasoline and Diesel engines, and reduce both upkeep costs and fuel consumption, when you use *Texaco Ursa Oil* X★★. It's ideal lubrication for engines in severe service.

Texaco Ursa Oil X★★ is noted for its ability to protect against wear, rust and corrosion. In addition, its fully detergent-dispersive properties keep engines clean . . . free from harmful carbon and sludge formations . . . assuring free rings for better compression and combustion. No wonder efficiency goes up, costs come down!

Let a Texaco Lubrication Engineer help you with Texaco's Simplified Lubrication Plan for keeping all your equipment in shape the year 'round. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

Get What You Want—No Charge!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16, N. Y. We will see that catalogs are sent to you without expense or obligation.

11/50

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Name ..... **Position** .....

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Self-Loader for Trucks Loads, Hauls, Dumps

700 One man handles all three jobs with the Owen Loader, manufactured by Ernest Holmes Co., Chattanooga, Tenn. This complete digging and loading unit speeds up loading and unloading, cuts costs, through elbow-action. Write for illustrated literature.

For Water Purification

701 Write to Activated Alum Sales Corp., 316 Wyndhurst Ave., Baltimore 10, Md., for the facts about activated alum, used for water purification. Acid-treated insolubles weight the floc, give faster settling; high alumina content; used and preferred by 274 municipalities and industries for over 14 years.

Fire-Hose Dryer

702 Circul-Air is a patented, electrically-operated and air-conditioned fire hose dryer. Its method is rapid, simple and economical. For illustrated pamphlet, write to the Circul-Air Corp., 575 E. Milwaukee St., Detroit 2, Mich.

Economical Pumping

703 Longer service with less maintenance is typical of Economy Pumps. Many improvements in design, workmanship and materials contribute to their higher efficiency, greater dependability and longer life. Write for Catalog A-1147 to Dept. AB-11, Economy Pumps, Inc., Div. of Hamilton-Thomas Corp., Hamilton, Ohio.

Cut Street, Construction And Repair Costs

704 Municipalities all over the U. S. have sharply cut street and road constructions and maintenance costs with the Seaman mixer. It blends and mixes aggregates or soils and binder thoroughly, distributes fines automatically, provides extremely high density of pavement. For more complete information, or for a list of cities now owning one or more Seaman mixer, write to Seaman Motors, Inc., 292 N. 25th St., Milwaukee 3, Wis.

Well-Water Systems

705 A poor well is a bad investment, but a good one saves many dollars each year. You can call in Layne, and then contract for the complete job; survey, test drilling, drilling of the well, setting casing and sand screen, building and installing the pumps, and final testing—all by trained Layne engineers. For further information and catalogs write to Layne & Bowler, Inc., General Offices, Memphis 8, Tenn.

Wellpoints Cure Wet Excavation

706 *The Well Point System* is the title of a new book discussing the application of well points to ground water problems in construction work, and emphasizing the mutual interest of the contractor and engineer. Published by Griffin Wellpoint Corp., 881 E. 141st St., New York 4, N. Y., the book contains 78 line drawings and over 30 photographs. Available to practicing engineers: $1.50 to all others. Write for your copy.

Heat from Sewage Sludge Gas

707 P.F.T. digester heater and heat exchanger units utilize sewage sludge gas to provide digester heating as well as building heating. For complete information about P.F.T. sewage treatment equipment, write to Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago 13, Ill.

No More Water Complaints

708 Problems of taste, color and odor in water are solved quickly, efficiently, and economically by ozone treatment utilizing reliable ozone units designed and manufactured by Welsbach. For helpful suggestions to overcome your water problems, write to The Welsbach Corp., Ozone Processes Div., 1500 Walnut St., Philadelphia 2, Pa.

Surge Relief Valves

709 Avoid pipeline troubles caused by excessive shock pressure with a Golden-Anderson "cushioned" surge-relief valve. The valve is hydraulically operated, designed with a differential-type piston that exposes a greater area to the closing force than to the opening. It provides full pipeline opening when opened and is drop tight when closed. To get full information, write the Golden-Anderson Valve Specialty Co., 207 Keenan Bldg., Pittsburgh 22, Pa., and ask for Bulletin No. W-2.

Economical Street Signs

710 Grote signs are made with clearly embossed letters or symbols raised on heavy-gauge steel and finished with three separate coats of baked-on enamel—perfectly bonded to the metal so it will not chip, flake, crack, or show spall or rust. Reflectorized or plain embossed, all are designed and assembled to resist the abuses of vandalism. The Grote *Street Name and Sign Manual* illustrates Grote signs to fit every requirement—economical to buy and to install for years of permanent service. For your copy, write to the Grote Mfg. Co., Inc., Bellevue, Ky.

All-Purpose Refuse Loader

711 The Roto-Pac refuse collector provides continuous automatic loading and packing for more economical refuse collection. The Roto-Pac hopper has the lowest loading height of any unit. For a demonstration, write to City Tank Corp., 53-09 97th Place, Corona, L. I., N. Y.

Easily-Maintained Water Hydrants

712 There's a Darling hydrant that's just right for practically every known requirement. Why not let a Darling engineer explain how effectively, how economically your particular service conditions can be met with modern Darling hydrants? Write for Catalog 17M, which describes all the various features, types and sizes of these hydrants in complete detail. Darling Valve & Mfg. Co., Williamsport 10, Pa.

Electric Level Controls

713 All-electric floatless liquid level controls are manufactured by the B/W Controller Corp. 2106 E. Maple Rd., Birmingham, Mich. Upon request, the company will send data on its product, including special controls and panels, induction relays and relay switches, contractors and starters, relay and starter combinations, electrode holders and multiple pump controls.

Asphalt Equipment

714 Right off the press is White's new catalog No. 32-D, covering machinery for the maintenance and construction of roads and streets. The catalog describes portable and stationary asphalt plants, concrete vibrators, asphalt and tar-heating kettles, front-end loaders for wheel-type tractors, tool and surface heaters and kerosene torches. Address your inquiry to White Mfg. Co., Elkhart, Ind.

Brush Grinder

715 Do you have a Brush Grinder? If you use an M & M Portable Brush Grinder, your trucks won't have to haul bulky, wasteful, hard-to-dispose-of brush when collecting refuse. This grinder, a product of Mitts & Merrill, 104 Holden St., Saginaw, Mich., will take several loads of loose brush and grind it into one compact load that may be used for compost or burned easily in an incinerator.

(Please Turn to Page 23 for More Literature)

THE FIRST MECHANICAL JOINT TAPPING SLEEVE AND VALVE

ELIMINATES { **MELTING** **POURING** **CAULKING**

A new *all* Mechanical Joint Tapping Sleeve and Valve, installed quickly and easily even by untrained workmen using a ratchet wrench. There are no joints to pour and caulk.
Installation can be made in wet trenches in any kind of weather.
The "Stuffing Box" type joints require no cutting or scarfing of rubber gaskets on job. Assemble Sleeve on main—attach the Valve, the installation is complete and the joints are permanently bottle-tight.

32

GATE VALVES
CHECK VALVES
FIRE HYDRANTS
INSERTING VALVES
TAPPING SLEEVES AND VALVES
WATER SERVICE BRASS GOODS

THE A. P. SMITH MFG. CO.
ESTABLISHED 1896
EAST ORANGE, NEW JERSEY

FLOOR STANDS
INDICATOR POSTS
TAPPING MACHINES
INSERTING MACHINES
PIPE CUTTING MACHINES
CORPORATION TAPPING MACHINES

Which Catalog Interests You?

Use the Coupon on Page 21

Hydraulic Digger Saves Manpower

716 The Sherman all-hydraulic power digger, a new type of earth-handling machine, is completely controlled by simple time-tested hydraulics. Its lightweight, yet sturdy construction, low initial and operating costs make the digger a practical labor-saving device in large and small operations. For free descriptive literature, write Sherman Products, Inc., Royal Oak, Mich.

Tamper-Proof Parking Meters

717 For "theft-proof" operation, the Rhodes Mark-Time Parking meter provides a guaranteed sealed coin box, tamper-proof from the outside, with coin slot automatically closed when withdrawn from the meter. For more information about these all-weather, low-cost, theft-proof meters, write to M. H. Rhodes, Inc., Hartford, Conn.

Protect Equipment From Water Damage

718 Use Fulton triple-strength Tarps to protect stocks, machinery, or other valuable equipment from water damage during fires, sprinkler system operations, or bad weather. For more information about these pliable, easy-to-handle, Shuredry Green-Bak salvage covers, write to the Fulton Bag & Cotton Mills, P. O. Box 1726, Atlanta 2b, Ga.

Speeds Refuse Collection

719 The new White 3000 super-power refuse truck saves maneuvering time, driver time, route time, because it speeds every phase of collection service. For a catalog or demonstration of the money-saving advantages of the new White 3000, write to The White Motor Co., Cleveland 1, Ohio.

The Right Weed Killer For Every Purpose

720 The American Chemical Paint Co., Amber, Pa., offers dependable, sure weed killers in its complete line of 2,4-D and 2,4,5-T products. Weedone Brush Killer 32, a combination of these products, will emulsify with water, or mix with Diesel oil, kerosene, or water-oil mixture. Write for complete information.

Asphaltic Concrete Pavements

721 Texaco asphaltic concrete paving stands up under the severest municipal traffic. This resilient, rugged, joint-free, heavy-duty pavement has been used for consistently good service in 1,500 American cities during the past 45 years. For two helpful booklets describing all types of asphalt street construction, write to The Texas Co., Asphalt Sales Dept., 135 E. 42nd St., New York City 17.

Portable Aluminum Towers For Any Emergency

722 Trig towers, made of lightweight aluminum, are "packaged" units designed for quick transportation in emergencies; many municipal uses include siren installation for air-raid warning, emergency lighting installation, two-way fire and police radio-telephone, loudspeaker, and traffic control signals. Write to Rostan Corp., 202 East 44th St., New York 17, N. Y., for full details.

Shade Tree Spraying

723 After winter comes spring and attention to shade trees as well as to fly and mosquito control. If you plan to include this equipment in your annual budget, be sure to get the John Bean leaflet on The Ranger, a unit completely equipped for general-purpose spraying. Write to John Bean Div., Food Machinery and Chemical Corp., 5 Hosmer St., Lansing 4, Mich.

Manhole, Catchbasin Castings

724 Choose designs for current and future manhole and catch-basin castings from *Construction Castings*, a new catalog, published by Neenah Foundry Co., Neenah, Wis. This book, Catalog R, includes complete designs and specifications for many new and modern models as well as familiar, older Neenah designs. Write for your copy.

Dustproof, Weatherproof Traffic Signals

725 Autoflow traffic signals are equipped with Universal mounting and adjustment, interchangeable parts; span-wire, mast-arm, bracket, pedestal, or pipe mounting. No tools are required for inspections or adjustments. For further information, write to Southern Signals, Inc., Box 1303, 222 Beach St., Shreveport, La.

For Painting Safety And Parking Lines

726 The Flotine marking machine is efficient, speedy and low-priced. This one-man, one-hand operation, used for safety and parking lines at walking pace, operates on gravity feed without compressed air or electrical attachments. Write to the H. C. Sweet Co., 12083 Woodbine Ave., Detroit 28, Mich., for information.

Improve Water and Sewage Coagulation

727 Full details on Ferri-Floc, the new ferric iron coagulant used in water and sewage treatment, are available from the Tennessee Corp., Atlanta, Ga., in its free 35-page booklet. Write for your copy.

Centrifugal Pumps

728 Sewage and storm water are being handled quickly and easily in many cities by the "Big Fellows"—Morris storm-water and sewage pumps. Available in sizes from 12- to 84-inch diameter discharge; ideally suited for capacities to 450 C.F.S. Write your requirements to Morris Machine Works, Baldwinsville, N. Y.

Make Your Town Safe With Good Street Lighting

729 There's danger in darkness—safety in light. Give your town the benefit of Westinghouse planned lighting systems, developed by experienced, progressive Westinghouse engineers. For complete information and descriptive literature, write to Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

Permanent Sewer Pipe Joints

730 The jointing of sewer pipe is a very small item compared to the total cost of any sewer system. Atlas G-K Compound joints will pay for themselves by lowering pumping costs. For Bulletin M20-1, write to The Atlas Mineral Products Co., Mertztown, Pa.

Mount This Brush Chipper On Truck, Trailer, or Tractor

731 The Asplundh chipper, designed for quick, economical branch and foliage disposal, handles brush from sucker growth up to 6-inch limbs, with or without foliage, green or seasoned. Truck, trailer, or tractor mounted, it is easily transferred to any type of mounting, if operation changes require it. Write for illustrated, descriptive folder, to Asplundh Chipper Co., 501 York Road, Jenkintown, Pa.

New Economy in Turbine Pump Operation

732 The new U. S. Streamway Verticlosed motor affords economical operation, better performance, longer life. Features downdraft ventilation, normalized castings, interchangeable bases, adjustable hollow shaft; gravity-fed regulated oil flow and visible lubricant supply. U. S. Electrical Motors, Inc., Los Angeles 54, Calif., will send your copy of descriptive bulletin.

For Repairing Broken Mains

733 In 5 to 15 minutes one man can install a Skinner-Seal Split coupling clamp to make a dependable, lasting repair in a broken pipe main. This clamp is built to outlast the main, and tested to 800 pounds. For more complete details, write to M. B. Skinner Co., South Bend 21, Ind.

Need Help with Your Steel Problems?

734 In these critical times, the problem of steel procurement is more difficult than ever. Because of the national emergency, steel shortages are inevitable. Write your requirements for carbon, stainless, and alloy steels to Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Chicago 80, Ill.

All-Purpose Filter Medium

735 Anthrafilt doubles the length of filter runs, uses only half as much wash water, thus increasing filter output with better quality effluent. Also recommended for removal of fibrous material, such as that found in swimming pool filters. Additional information and quotations furnished on request to Palmer Filter Equipment Co., 822 E. 8th St., Erie, Pa.

Reduce Installation Time With Standardized Sluice Gates

736 Chapman standardized sluice gates are designed with interchangeable stems and couplings so that match-marking in the field is unnecessary. These gates may be obtained with any type of operating control—manual, hydraulic cylinder, or motor unit. For additional information send for your copy of *Chapman's Sluice Gate Handbook*, from The Chapman Valve Mfg. Co., Indian Orchard, Mass.

Improve Your Lawns

737 Scott, a new O. M. Scott & Sons Co. development, stops growth of crabgrass, witchgrass, or watergrass without permanent harm to lawns. Write to the company at Marysville, Ohio, or Ridgefield, N. J., for illustrated literature.

For Leaking Masonry In Water and Sewage Plants

738 Ginsonite Insul-Mastic insulates, waterproofs, rustproofs, deadens sound, prevents condensation, and resists fire, with one application. For fully illustrated, complete, descriptive catalog, write to the Insul-Mastic Corp. of America, Oliver Bldg., Pittsburgh 22, Pa.

Lower Construction Costs

739 The advantages of awarding one general contract to secure maximum value in construction are cited in a booklet issued by The Associated General Contractors of America, Inc., 1227 Munsey Bldg., Washington 4, D. C. Some of the subjects discussed are creative management, uniform labor policy, lowest cost and coordination for maximum efficiency.

(Please Turn to Page 27 for More Literature)

NEW YORK CITY BUYS

For the World's Biggest Street Cleaning Job

Over 200 other leading cities in the United States are WAYNE users.

A few are: Boston, Detroit, Miami, St. Paul, Minneapolis, Jersey City, Oakland, Los Angeles, Seattle, San Antonio, Terre Haute, Washington, D.C., Omaha.

SOLD AND SERVICED BY A FINE DEALER ORGANIZATION

DEALERS IN ALL PRINCIPAL CITIES

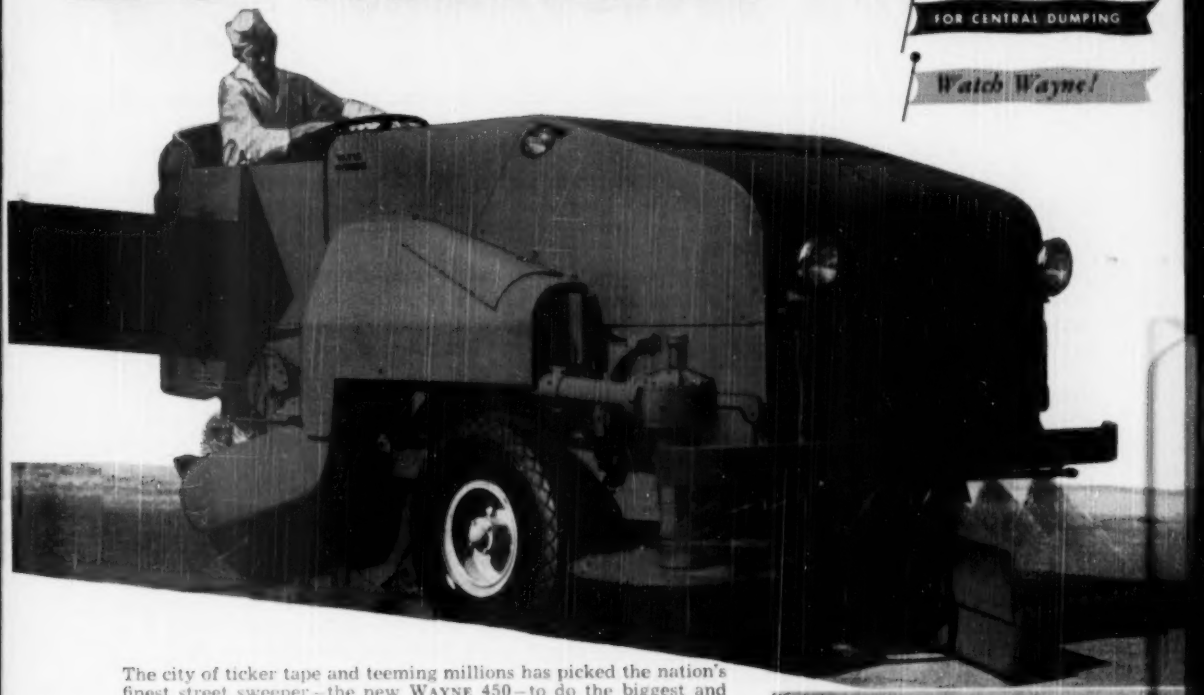
20 WAYNES!

FOR GREATER CAPACITY

FOR TRUCK SPEEDS

FOR CENTRAL DUMPING

Watch Wayne!

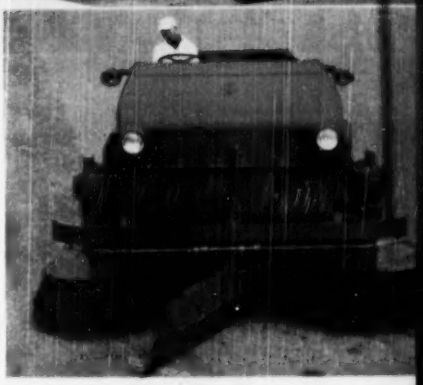


The city of ticker tape and teeming millions has picked the nation's finest street sweeper—the new WAYNE 450—to do the biggest and most complex street cleaning job in the world. Twenty machines have been purchased on one order.

Put through exhaustive tests by New York City's thorough and exacting Department of Sanitation, the WAYNE 450 Pick-Up Sweeper was chosen over all competition. It was selected for its sweeping speed, efficiency of operation, maneuverability, and its ability to transport its full hopper load at truck speeds.

Because it can sweep up and haul away 84 cubic feet of dirt and debris—over 3 cubic yards—in one load—the sweeper eliminates the need for a pick-up truck and crew. It can take each load to a central dumping point, or, in the case of smaller cities, direct to the city dump, and be back on the sweeping job in a matter of minutes. The result is a saving in equipment and manpower that can pay for the sweeper in a short time.

If you are looking for a pick-up street sweeper that can sweep more curb miles per day—*at a lower cost*—follow the example of New York City and cities throughout the nation that are placing orders for the WAYNE 450. For complete information about the WAYNE 450, write for the new catalog.

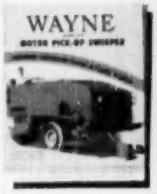


Here are some of the additional reasons for the WAYNE 450's popularity: Low body design with full forward vision; 42" forward gutter broom; full floating suspension of the pick-up broom; four-speed heavy duty transmission; trouble-free, non-clogging elevator with 2 speeds and reverse; full front axle and rear wheel steering. It is made with single and dual gutter brooms. The dual gutter broom sweepers for one-way streets have dual steering and all dual controls.

WAYNE MANUFACTURING COMPANY

Manufacturers of Street Sweepers, Industrial Sweepers, Tri-Cars and Scooters

1201 E. LEXINGTON STREET, POMONA, CALIFORNIA



WAYNE

PICK-UP

SWEEPERS

FOR THE CLEANEST SWEEP OF ALL!

RYERSON STEELGRAMS

This bulletin is written to keep you abreast of the warehouse steel situation as we see it here at the Ryerson Company. We hope you will find this summary helpful in specifying, buying and working with steel.

If you have orders with DO Priority Ratings be sure to pass ratings along to your steel supplier. This will not only expedite delivery of steel but may also help warehouses maintain inventories against your future demands. Depleted warehouse stocks of 1942 emphasize importance of working for continuous replenishment.

New loan guarantees, recently announced by the Federal Reserve are helping many small manufacturers with defense contracts. Similar to World War II V-Loan program, the new set-up provides such manufacturers with easier access to working capital.

Despite restrictions on nickel, you will still be able to obtain alloy steel of comparable performance containing other alloying elements. As warehouse stocks of nickel alloys are depleted, triple alloys, which proved their worth in World War II, will take their place. Cost — slightly less.

A word about telephone service — A tremendous number of incoming calls is taxing the capacity of our personnel and switchboards, and even of whole exchanges that serve our plants. What we are doing about it: Improved facilities are now being installed or planned for where needed. Suggested emergency measures: early calls before peak loads; telegraph; mail, which most Ryerson plants pick up hourly at P. O. for quicker service.

Improved outlook — Building for the future, the Ryerson Chicago plant is being extensively rebuilt and enlarged. In Cincinnati — a completely new Ryerson plant at new location soon to be in operation. At Philadelphia — a new mill-type slitting line gives quick service on strip steel of any width up to 48".

New machinability records for alloy steel are being set by Ryerson Rycut — a free-machining medium-carbon alloy. Shop experience shows that Rycut machines 25% to 50% faster than standard alloys of same type, annealed or heat treated.

Shortages of some products such as bars, shapes, plates and sheets are inevitable. But many others are in good supply at Ryerson. Among them:

Tubing — Good tonnage of both seamless and welded mechanical tubing is on hand and new stock is coming in regularly. So while we may be short of a few sizes one week, they may be available the next.

Inland 4-Way Safety Plate — Large and medium patterns in a good range of sizes available for those who need material combining a sure-traction surface with strength, durability and fire-safety.

Also quickly available from Ryerson: Forgings, cold drawn special shapes, tool steel, drill rod, chain, wire rope, expanded metal, Babbitt metal.

Joseph T. Ryerson & Son, Inc. Steel-service plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles and San Francisco.

Get This Literature—Free!

Use the Coupon on Page 21

Permanent Aluminum Markers

740 There is a Lake Shore marker for every municipal use—reflectorized street signs, wall plaques, memorial tablets, or signs designed to your order. Write for your copy of the Lake Shore Catalog. Lake Shore Markers, Div. Lake Shore Pattern Works, 654 W. 19th St., Erie, Pa.

For Fast, Economical Snow Removal

741 Four-wheel drive provides speeds up to 19 mph on the rubber-tired Tournadozer, which is equipped with a big "V"-type snow plow to replace the dozer blade. Fast-acting cable-operated controls will raise the plow 5½ feet to handle high-bank jobs. Write to R. G. LeTourneau, Inc., Peoria, Ill., for complete information.

Gear-Driven Fire Pumps

742 Barton-American gear-driven, front-mounted centrifugal fire pumps give dependable fire-fighting service. Weight and space saved by the front-mounted construction permits an additional 100 gallons of water to be carried in the booster tank. For details, write to American-Marsh Pumps, Inc., Battle Creek, Mich.

Road Maintenance and Construction Equipment

743 Littleford blacktop road maintenance equipment simplifies the heating and application of asphalt, tar, emulsion, cutback, and road oils. For assistance with your construction problems, or estimates on new equipment and repair work, write for Catalog AA, to Littleford Bros., Inc., 500 E. Pearl St., Cincinnati 2, Ohio.

Jointing Cast-Iron Water Mains

744 No caulking is needed when Leadite is used for jointing cast-iron water mains, and Leadite joints improve with age. Shipped in powder form, this compound cement is melted and poured, eliminating bell-hole digging. Write for information to The Leadite Co., Girard Trust Co. Bldg., Philadelphia, Pa.

Cooling Tower Blowers

745 A brand new catalog has been issued by The Moore Co., 800 South Missouri, Marceline, Mo., describing its axial flow pressure blowers. They are particularly well fitted to cooling tower installations and all duct work where large volumes of air are needed. Write for your copy.

Loads from Either End

746 If you can use the Lodover, you can pick up dirt, gravel, sand or other material from either the back of the tractor or the front, and load it into a truck. This will increase the yardage you will handle from 40% to 60%. For more information, write for Bulletin LO 200, to the Manufacturing Div., Service Supply Corp., Philadelphia 33, Pa.

Tractor-Mounted Traffic Striper

747 A complete, self-propelled, large-capacity traffic-line marker is featured by Gledhill Road Machinery Corp., Galion, Ohio. This machine paints three traffic lines: center-line three to eight inches wide, solid or broken, outer lines three to six inches wide in solid pattern. Write to the company for complete information about this fast, economical road-marking tool.

Keep Concrete In Shape With Gunite

748 When Gunite concrete is properly applied to a deteriorating concrete structure, the structure generally is as strong or stronger than it was when built. For illustrated descriptive literature, write to "Gunite" Florida Service, Inc, 4063 Ponce de Leon Blvd., Coral Gables, Fla.

Does Your City Need Elevated Water Tanks?

749 Horton elevated tanks help to solve the problem of inadequate water supply and reduced pressures during peak-load periods. Radial-cone bottom design reduces the average head, thus lowering pumping costs. If your city has a water problem or foresees one in the future, write for an estimate on your elevated water storage requirements. Chicago Bridge & Iron Co., 2127 McCormick Bldg., Chicago 4, Ill.

Photoelectric Smoke Detector

750 Smoke causes panic in public assemblies; the Photoswitch photoelectric smoke detector works automatically at the first sign of smoke—turning off blowers, closing shutters, signaling the maintenance department. For more information, send for Bulletin PE 505, from Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass.

This Pump Is Lubricated for Life

751 You can throw away the grease gun and oil can when you install a De Laval-Type GS pump. Designed to be as "maintenance-free" as possible, this pump is equipped with pre-lubricated bearings. All parts except the bare pump casings are contained in one rotor assembly; when maintenance is necessary, the top cover and end plate bolts are easily removed and assembly replaced. New rotors available from stock, full credit is given for used rotor and serviceable parts. Write for Bulletin 1001 to the De Laval Steam Turbine Co., Dept. 10-13-B, Trenton 2, N. J.

These Lighting Hangers Can Be Lowered

752 Why make a man risk his life by climbing a pole to change a light? Thompson lighting hangers can be lowered so that bulbs can be changed and fixtures inspected on the ground. Write to The Thompson Electric Co., Cleveland, Ohio.

Adjustable Mimeograph Machine for Fast Reproduction

753 A. B. Dick Company's modern mimeograph machines adjust instantly for different sizes of paper and cards, make photochemical reproductions of intricate drawings and ruled forms, and permit full use of colors without time-consuming machine cleaning. Write for free portfolio of samples and full facts about modern mimeographing to A. B. Dick Co., Dept. AC-1050, 5700 W. Touhy Ave., Chicago 31, Ill.

Saran-Lined Pipe

754 When the handling of liquids is tough, Saran-lined pipe and fittings is your answer. Dow Chemical now makes the pipe to meet a temperature range of 40° F. to 194° F. Its mechanical strength has reached equality with metal pipe. Corrosion resistance has been enhanced and field fabricating using conventional tools has been accomplished. When writing for literature, address your request to Dow Chemical Co., Saran Fabrication Division, 2415 Burdette Ave., Ferndale 20, Mich.

Loaders, Street Pavers?

755 Barber-Greene snow loaders work equally well in loading sand and gravel. If interested in snow handling or if your streets or airport runways need surfacing, you should get literature from the Barber-Greene Co., Aurora, Ill., whose loaders and street equipment have long records of service to back them up.

Protect Sewage-Gas Engines From Sulphur Damage

756 Connelly Iron Sponge gas purification is an efficient, low-cost method for protecting engines and other valuable equipment against pitting and corroding of sewage and other gases. Connelly engineers, with years of experience in solving gas purification problems, are at your service. Write to Connelly, Inc., 3154 S. California Ave., Chicago 8, Ill.

Emergency Sirens

757 Federal coaster sirens are quick to action, powerful, and save current by special ball-bearing coasting assembly. Equipped with improved Propello-Ray light, these sirens can warn the deaf or blind, the motorist or pedestrian. For information about these, or special air-raid warning sirens, write to Federal Enterprises, Inc., 8700 South State St., Chicago 19, Ill.

Chemically Pure Water Direct from Your Faucet

758 The LaMotte Filtr-Iron Unit is a convenient and inexpensive unit designed for users of small amounts of chemically pure water where larger and more elaborate equipment would be impractical. Each unit produces up to 10 gpm with a pH of about 7.0. Write to LaMotte Chemical Products Co., Towson, Baltimore 4, Md., for illustrated folder.

Protects Metal, Concrete, Wood

759 Nukemite, a synthetic resin coating resistant to acid, alkali, or other chemical corrosion, protects metal, concrete and wood surfaces. Applied with brush or sprayer, Nukemite is not a paint; it is a leak-proof, odorless, and non-contaminating resin film. For complete information, write to Nukem Products Corp., Buffalo 20, N. Y.

Cut Concrete Faster At Lower Cost

760 The Tri-Line concrete cutter cuts concrete and blacktop easily, with its diamond cutting blade, without spalling. You save in labor and material costs, and eliminate costly after-maintenance problems on any repair or construction job. For a demonstration in your area, write to the Tri-Line Co., 921-931 Carroll St., Racine, Wis.

Lightweight, Flexible

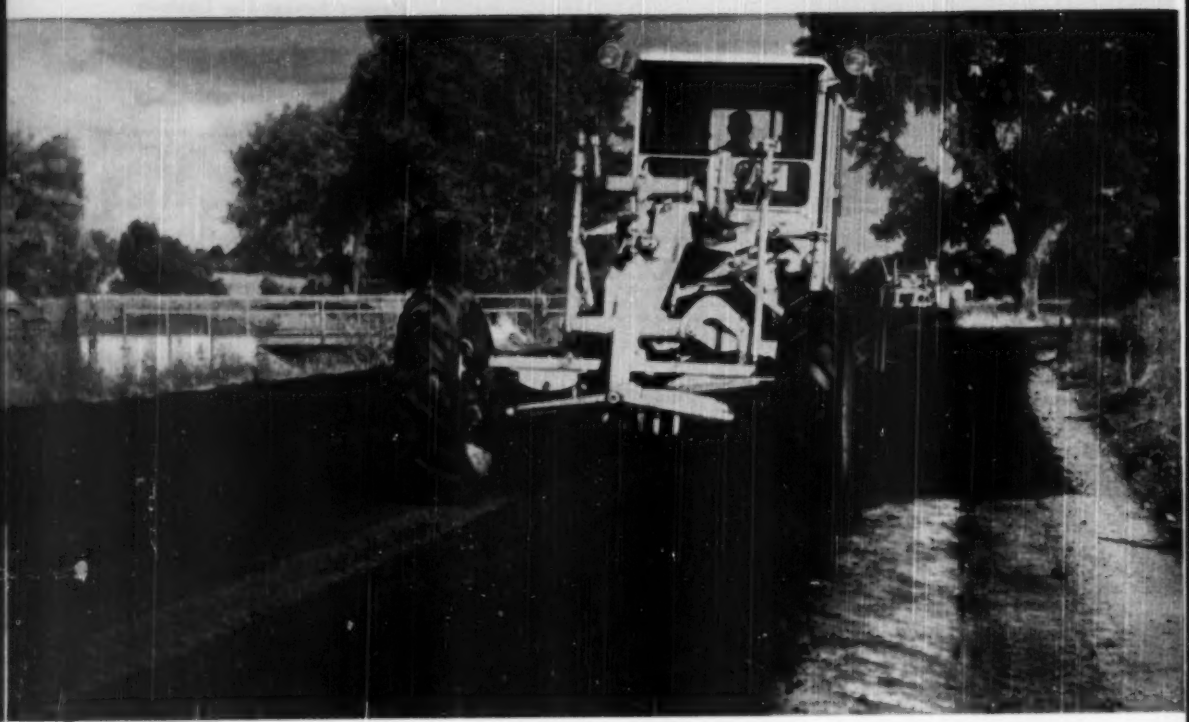
761 Carlon plastic pipe is recommended for handling sewage and industrial wastes, for overland installations of municipal and industrial water systems, and for applications involving moderately high pressures. Lightweight, flexible, and corrosion-proof, this pipe is also recommended for liquids intended for human consumption. For illustrated catalog, write to Carter Products Corp., 10139 Meech Ave., Cleveland 5, Ohio.

Warning Lanterns

762 Embury Traffic-Gard warning lanterns burn 100 hours on a pint of kerosene. Cool burning, no lens breakage from heat; low first cost and upkeep; easy to carry and place. For more complete information, write to Embury Mfg. Co., 230 Allen St., Warsaw, N. Y.

(Please Turn to Page 30 for More Literature)

THE Grader



This "Cat" Diesel No. 112 Motor Grader, together with its 14-year-old (No. 11) brother, handle the oil mix on 100 miles of Englewood, Colorado, streets.

EXCLUSIVE bonus features, found only on "Cat" Diesel Motor Graders, make these balanced machines the best you can put on your payroll.

"For our work, how can you beat 'Caterpillar'?" says C. A. Smith, Street and Water Commissioner of Englewood, Colorado. He's referring to this "Cat" No. 112 Grader, working oil mix on Englewood streets.

The "Cat" Motor Grader with its matching "Cat" Diesel Engine is the prime tool for mixing and laying blacktop, and keeping the motoring taxpayer happy. You can't beat it for cutting and shaping road base, or for finishing.

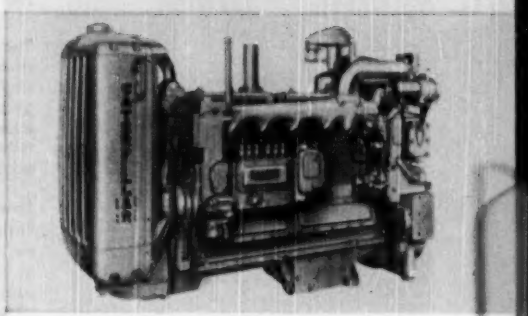
And remember that "Cat" Graders are precision-balanced—speed, weight, power—to keep going on the job and get the best results. The smooth, easy way they work, you *know* their left wheels know what their right wheels are doing.

These are some of the features that make "Cat" Motor Graders best for your job. There are many more. Why not ask your "Caterpillar" dealer to show you all these extra-quality bonus advantages?

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

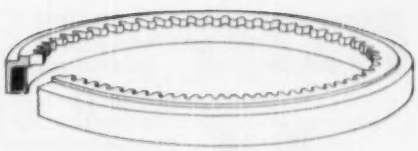
THAT'S IN A CLASS BY ITSELF

1 ***ONLY*** "Cat" Graders have "Cat" Diesel Engines for continuous service and economy of operation. It's part of balanced design that saves you operating dollars.



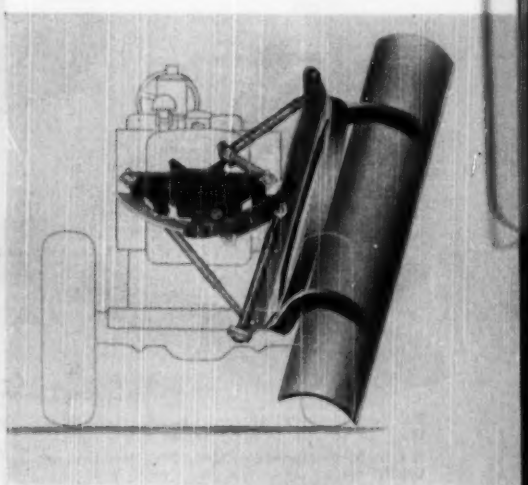
2 ***ONLY*** the "Caterpillar" Motor Grader line has no orphans. Stocks of parts are maintained for each member of the "Cat" Grader family regardless of age. They work in harness—not die on the vine. Your original investment is protected.

3 ***ONLY*** "Cat" Graders have a box-section blade supporting circle, made from a special angle produced on a "Caterpillar"-owned roll.



4 ***ONLY*** "Cat" Motor Graders provide such excellent visibility for the operator. Power control box is mounted low, lift gear is mounted against the dash. Clean frame design permits the operator to see toe and heel of the blade, sitting down.

5 ***ONLY*** "Cat" Graders have the long radius curved side shift rack that provides extra lateral shift to the blade assembly, together with the required vertical movement.



6 ***ONLY*** with "Caterpillar" equipment do you buy-in on the world-wide "Caterpillar" dealer service—adequate parts inventory and factory-trained servicemen to keep wheels, tracks and engine turning on location.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

HAISS Material Handling
BUCKET LOADERS

FOUR MODELS

Load 3 to 8 Yards per min.

Self-Propelled

Self-Feeding

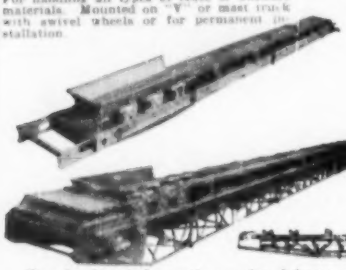
For loading: sand, gravel, stone, top-soil, coal, snow and similar materials. One-man operation, wheel or crawler mounted. Furnished with swivel chute or with swivel belt conveyor.

Special new features include: Sealed anti-friction bearings on head and tail shafts, two or four wheel drive, hydraulic raising and lowering, manganese or roller chain.

HAISS CONVEYORS
CAR UNLOADERS

Flat and Trough Belt Conveyors
For handling all types of loose or package materials. Mounted on "V" or mast truck with swivel wheels or for permanent installation.

UNDERCAR UNLOADERS
Designed and built especially for loading sand, gravel, and crushed stone. Combination belt and positive chain drive. Capacity up to 5 tons per minute. Ask for bulletin No. 501.



SECTIONAL CONVEYORS
Channel or Lattice Frame construction. Made in easily assembled standard sections for permanent or portable installation. All sizes and capacities available for handling all types of aggregates as well as bagged or packaged materials.

For further information write, 'phone or wire. Experienced Haiss Representatives are located in all principal cities.

George Haiss Mfg. Co., Inc. division of **Pettibone Mulliken Corp.**
141st to 144th St. on Park Ave., New York 51, N. Y. 'Phone Mott Haven 5-2200
4700 W. Division St., Chicago 51, Ill. 'Phone Spaulding 2-9300

Get These Free

Use the Coupon on Page 21

Virtue in Politics?

763 Is there a "double standard" for politicians, or is it possible to be scrupulously honest and still be a successful politician? Read the answer in *One of the Few*, the story of C. H. Demarest, five-term mayor of Bloomfield, N. J. Published by Canyon Press of New York, 132 Beekman St., New York 7, N. Y., this book discusses all phases of municipal government. $3.00 per copy. For more complete information, write to the publisher.

Save Time with This Fire Engine Chassis

764 FWD four-wheel-drive fire-fighting apparatus gives extra traction for fast starts, holding the course on straight-aways and curves, climbing steep grades without loss of speed. For full information, write to The Four Wheel Drive Auto Co., Clintonville, Wis.

Pumps for Every City Need

765 Your complete city water pumping cycle from supply through disposal can be efficiently and economically handled by Peerless pumps. Designed for water supply, boosting, sewage disposal, and drainage, these pumps cut time, investment and maintenance by standardization. Individual descriptive and illustrated bulletins are available on each type; write for your free copies to Peerless Pump Div., Food Machinery and Chemical Corp., 301 West Avenue 26, Los Angeles 31, Calif.

For Handling Sewage Lift Problems

766 Carter's pneumatic sewage ejectors save money by eliminating the costly auxiliary screening equipment required with centrifugal pumps. No moving parts; no clogging or binding; fully automatic controls. For help with your waste problems, write to Dept. S, Ralph B. Carter Co., 190 Atlantic St., Hackensack, N. J.

Motor Graders

767 Adams graders give long, economical service on all types of municipal projects —maintaining streets and roads; backfilling over sewers, water mains and gas pipes; grading playgrounds, parks, parking areas. For full particulars of the model best suited to your requirements, write to J. D. Adams Mfg. Co., Indianapolis, Ind.

For Clear Water In Swimming Pools

768 Swimming-pool authorities choose Bowser filters for crystal-clear water at lower operating costs. Write for your free copy of the new Bowser booklet *The Modern Way to Filter Swimming Pool Water*, giving the facts on Bowser filters for your city's swimming pools. Bowser, Inc., 1396 Creighton Ave., Fort Wayne 2, Ind.

Group-Washing Fountains

769 Bradley Washfountains are designed for modern group-washing requirements; running water assures maximum sanitation. These Washfountains are quickly cleaned, economically maintained; one unit replaces 8 to 10 basins. Write for illustrated literature giving complete information. Bradley Washfountain Co., 2203 West Michigan St., Milwaukee 1, Wis.

Chain Saws That Save You Money

770 *"How to Cut Costs and Make Money with Chain Saws"*—that's the title of a 36-page book that tells you how to buy, to use, and to profit by using chain saws. It's free—write to Henry Disston & Sons, Inc., 1065 Tacony, Philadelphia 35, Pa.

Here's why so many cities have installed MI-CO Parking Meters:

1) LOW COST MAINTENANCE AND EASY PATROLLING
Installations everywhere report maintenance so low it's negligible. And should a meter need attention it is usually adjusted right at the meter location so that very little productive time is lost. Patrolmen like MI-COs because the large violation signal is visible from both sides of the meter for a distance of 200 feet or more.

2) EASY OPERATION — FULL TIME, EVERY TIME
Motorists like MI-CO Meters, too. They know they will get *all* the time they purchase—every time. And turning the handle of a MI-CO is no more effort than turning the ignition key of a car.

3) MAXIMUM REVENUE
MI-COs deliver top earnings because they are seldom out of order. They do a full day's work, and can be depended upon to keep working under the severest weather conditions. This is the result of correct engineering, unusually rugged construction and fewer moving parts.

Contrast these advantages with meters that require excessive maintenance—that because of their intricate mechanism must be returned to the service shops or to the factory for frequent repairs. Meters with run-down springs that make them nonoperative.

If you have such meters, they should be replaced with MI-COs—the dependable meters that give you a substantial return on your investment, and many extra years of service. Or if you are not now enjoying the benefits of metered parking, we believe MI-CO Parking Meters are your best buy.

We'll be glad to submit facts and figures to substantiate our claims about the dependability of MI-COs.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc.

GarWood

in a class by itself

the leader in the field

performance never equalled

continuous improvement maintains its leadership

LOAD-PACKER

REFUSE COLLECTION UNIT

The Load-Packer was the original completely enclosed refuse collection unit with compressing action. From the start it has been the leader in the field.

Continuous improvement over the years has maintained this leadership. The Load-Packer is far out in front. Its performance has never been equalled.

The Load-Packer has an exceptionally low center of gravity—twin cylinder underbody hydraulic hoist . . . independently powered hydraulic tailgate unit . . . a surplus of hydraulic power for compression. Only Gar Wood builds the Load-Packer. See how it will reduce your collection costs and improve sanitation. Write for new bulletin.

GAR WOOD INDUSTRIES

GAR WOOD INDUSTRIES, INC.
WAYNE DIVISION, WAYNE, MICH., U.S.A.

PRODUCTS—HOISTS • DUMP BODIES • WINCHES • CRANES
TRACTOR EQUIPMENT • DITCHERS • SHOVELS
FINEGRADERS • SPREADERS • TRUCK PATROLS

GAR WOOD INDUSTRIES, INC.
Wayne Division, Wayne, Mich.

Please send me Bulletin M-60 telling how Gar Wood Load-Packers will help me reduce refuse collection costs and improve public health.

Name_____

Title_____

Address_____

City_____ State_____

MILLER

AMERICA'S FINEST PARKING METER

We will make a complete parking survey of your city . . . no charge, no obligation. Write today.

First Choice- ALL OVER AMERICA

Over 825 American cities are today using Miller Meters . . . your guarantee of complete satisfaction when you install Miller, America's finest parking meter.

When they buy Miller Meters once, they buy Miller Meters again and again.

For example:

Ogden, Utah, has just ordered another 1100 Miller Meters. This is in addition to their previous order for 1000.

Hagerstown, Maryland, has added over 600 additional Miller Meters since the original installation in 1937.

San Jose, Burbank and Vallejo, California; Eau Claire, Wisconsin and Salt Lake City, Utah, have re-ordered twice.

Omaha, Nebraska, as well as St. Petersburg and Miami, Florida, have repeated their orders for Miller Meters.

Yes, Miller Meters are first choice all over America . . . and first choice, too, when the time comes to re-order.

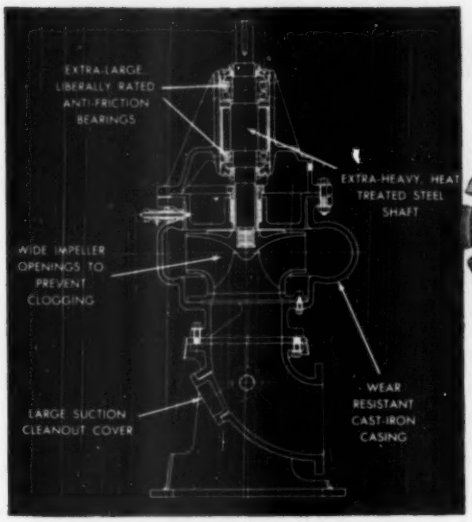
DUNCAN METER CORP.

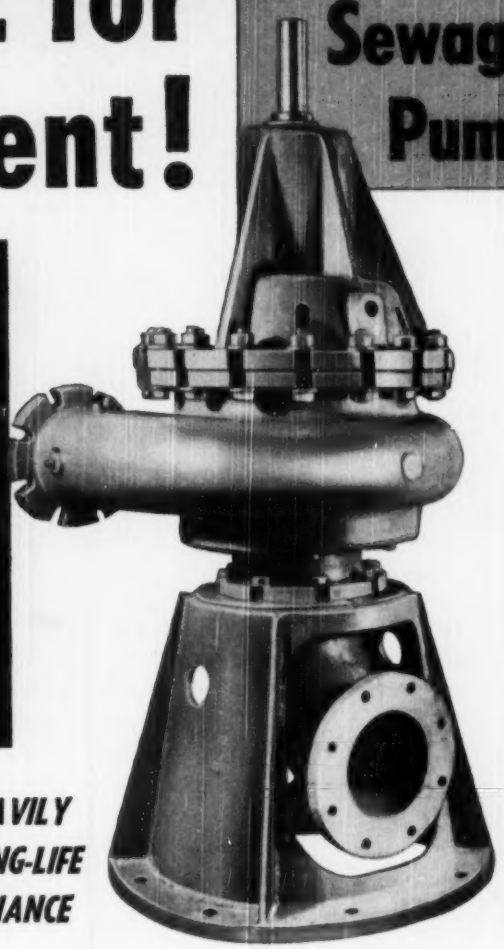
835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS

When writing Duncan Meter Corp., please mention THE AMERICAN CITY

A BRUTE for Punishment!

ALLIS-CHALMERS
Sewage Pump


EXTRA-LARGE, LIBERALLY RATED ANTI-FRICTION BEARINGS
EXTRA-HEAVY, HEAT TREATED STEEL SHAFT
WIDE IMPELLER OPENINGS TO PREVENT CLOGGING
WEAR RESISTANT CAST-IRON CASING
LARGE SUCTION CLEANOUT COVER



GENEROUSLY DESIGNED AND HEAVILY CONSTRUCTED TO GIVE YOU LONG-LIFE OPERATION AND LOW MAINTENANCE

FROM SHAFT TO BASE, extra-heavy construction in this new sewage pump adds up to long wear and low maintenance.

The shaft is heavier than in conventional sewage pumps—and made of open-hearth, heat-treated steel selected for high shock strength to resist breakage. Anti-friction bearings are extra-large and liberally rated. Impeller inlets are rounded-off, generously large to prevent clogging.

A radially-split casing makes it easy to remove the complete rotating element by simply removing the universal coupling and loosening a few bolts. You do it all in a few minutes and don't have to disturb the intake or discharge piping.

Standard sizes to 10,000 gpm — can be built larger. See your nearest A-C Sales Office or write for Bulletin 08B7504 for more complete details on this new pump. A-3113

ALLIS-CHALMERS, 1185A SO. 70 ST. MILWAUKEE, WIS.

ALLIS-CHALMERS

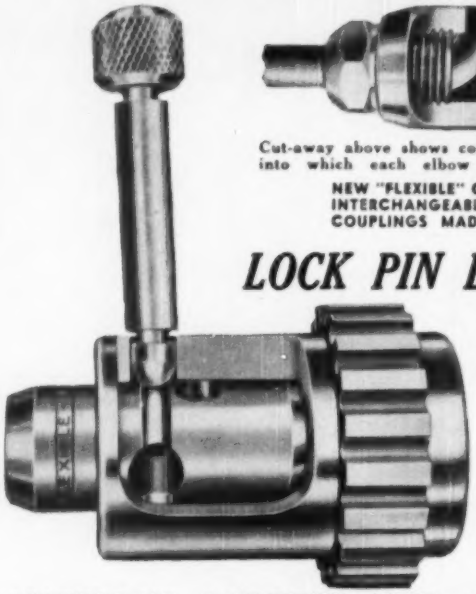
Texrope is an Allis-Chalmers trademark.

World's Widest Range of Public Works Equipment

NEW "FLEXIBLE" COUPLING!

Cut-away above shows compartments into which each elbow bend fits.

NEW "FLEXIBLE" COUPLINGS ARE COMPLETELY INTERCHANGEABLE WITH ALL "FLEXIBLE" COUPLINGS MADE IN THE LAST 15 YEARS



LOCK PIN LOCATER

Simply move coupling in or out of ratchet or power drive shaft, and press point of pin down until it clicks. Then turn right or left for hole. What could be easier?

Redesigned for faster, simpler, time-saving coupling-up. Impossible now to couple into lock pin hole. Rods cannot come apart in sewer line.

Write Today for Illustrated Literature

FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles 34, California

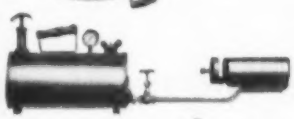
AMERICA'S LARGEST MFR. OF PIPE CLEANING TOOLS

White Kerosene Torches For Many Heating Uses

White torches are widely used by contractors, highway departments, railroads, general industry. They are heavy-duty units for dependable, satisfactory heating and melting.

They warm materials; melt snow and ice; thaw frozen pipes and machinery; loosen frozen car hoppers; burn weeds and refuse; preheat for welding; start foundry fires. Many uses where hot, clean, voluminous flame is wanted. Produce 1600° F. Model C-1, below, is only 3-gal. hand torch which burns entire fuel supply horizontally or vertically.

Hose connected torches, with 5, 15, 20-gal. heavy steel tanks. Burns 3 to 5 gals. per hour. Also with 2 burners, or on wheels. Round pot burner for kettles. G-1 is atomizing burner for high temperature with compressed air.



Note: Amount of heat is determined by quantity of fuel burned—not by flame length.

Write for Circular

White Mfg. Co.

ELKHART INDIANA

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured *No Large Bell-holes to Dig*

Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY

Girard Trust Co. Bldg., Philadelphia 2, Pa.

KEEP FORDS ALL FORDS

WITH

GENUINE FORD PARTS

●

Made Right, to Fit Right to Last Longer

Operators Agree...

there's NO WINTER LAYOFF for a LULL Shoveloader

EXTRA LIFTING STRENGTH

Lull Shoveloaders are equipped with lifting arms of rugged bridge-like construction. They are designed to give maximum lifting strength without bulkiness and to eliminate twisting or swaying even under maximum loads.

SNOW IS NO PROBLEM . . . for a LULL SHOVELOADER

You'll find Shoveloaders working on city streets, at airports, in the country, and around industrial plants, pushing . . . piling . . . plowing . . . or loading snow with their usual cost cutting efficiency.

Lull Shoveloaders are designed with more weight to the rear of tractor for easier handling and greater traction . . . both mighty important factors in winter operation. Power down crowd instantly controlled by operator permits a quick break through of hardest packed, heavy wet or even deep crusted snow. Ideal for clearing the way for heavy traffic or other operations. These are but a few of many reasons more and more experienced operators agree . . . there's NO WINTER LAYOFF for Lull Shoveloaders.

LONG FORWARD REACH permits Lull Shoveloader to fully load truck bodies from the rear, using only one lane of traffic and eliminating extra time consuming maneuvering.

EIGHT VALUE-PACKED MODELS
Eight models with a wide variety of interchangeable attachments make Lull Shoveloaders the most versatile equipment you can own.

Get LULL SHOVELOADER FACTS today. MAIL THIS COUPON NOW!

LULL Manufacturing Company
3612 East 44th Street Minneapolis 6, Minn.

Designers and Builders of The Largest Line of Allied Equipment for Industrial Wheel Type Tractors

LULL Manufacturing Company
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LULL SHOVELOADER AND ATTACHMENTS

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SHOVELOADERS • UNIVERSAL LOADERS • FLUID-DRIVEN SWEEPERS • LULLDOZERS • SHOULDER MAINTAINERS

ON heavy lifting jobs and scattered city maintenance work, requiring frequent cross-town moves, Koehring Truck Cranes roll along at traffic speeds up to 35 m.p.h. — get there fast, start work sooner, move on to next job quicker. There's no waiting for trailer, no loading and unloading delays, no planking with these mobile, rubber-tired units.

With the 10-ton Koehring 205, illustrated, maximum boom reach is 85 feet, with jib. Long reach and heavy lift capacity give plenty of operating stability for handling big clamshell or dragline buckets on a wide work range. This 205 is also quickly convertible to a dual-purpose boom for either ½-yard shovel dipper or hoe.

Bigger Koehring 304 Truck Crane safely lifts up to 25 tons, and has a maximum boom reach of 110 feet, with jib. Readily changed from crane to clamshell, dragline, pile driver, ¾-yard shovel or hoe, it also offers 35 m.p.h., "around-town" mobility to help you cover more work assignments with one unit. Other Koehring Crane sizes to 79½ tons — excavators to 2½ yards.

Whenever you consider cranes or excavators, be sure to measure all information by "Koehring work capacity". Your Koehring distributor has specific facts and figures that will let you prove for yourself the biggest time and money-saving advantage. See him soon.

CK21A

STABILIZE SUB-GRADES Where pavement, sidewalks, curbs, gutters are beginning to settle, try this low-cost method. Koehring Mud-Jack® pumps inexpensive soil-cement slurry into small holes drilled through slab, raises structure to original level, leaves firm, lasting support. Ideal for city maintenance. No traffic detours necessary. Ask your Koehring distributor about Mud-Jacks today.

KOEHRING HEAVY DUTY

KOEHRING COMPANY • MILWAUKEE 16, WIS.

SUBSIDIARIES: JOHNSON • PARSONS • KWIK-MIX

TRENCHES at 1 1/2 to 3 1/2 cu. yds. per minute

WITH 30 digging feeds, this Parsons 250 Trenchliner® excavates 1½ to 3½ cu. yds. per minute, depending on materials, depth and width of trench. In all soils short of solid rock you get clean-bottom, smooth-walled trenches 16 to 42 inches wide, and up to 12½ feet deep. For trenching along curbs, pole lines, or next to buildings in narrow streets and alleys, digging boom shifts across full width of machine, cuts to within 11 inches of side obstructions. Arc-type spoil conveyor dumps on either right or left side. Belt is instantly reversible in direction; conveyor shifts by power through machine in less than a minute. Arc provides sufficient discharge height for loading directly into trucks, or gives low-level drop for close-to-trench deposit. For more complete information on 250 Trenchliner performance, see your Parsons distributor. He can also show you other Trenchliner sizes, on crawlers or rubber tires, for digging 5 inches to 6 feet wide. See him. or write us TODAY.

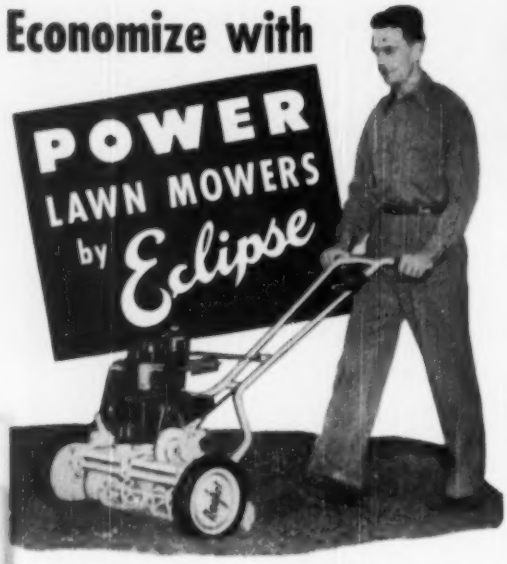
ONE-MAN bituminous mix plant

HERE is a versatile, fast-batching bituminous mixer that fits any production problem, sets up anywhere for economical one-man handling. Kwik-Mix 10 and 14 cu. ft. sizes are readily adaptable as stationary overhead plants. Single operator controls charging, mixing and discharging without leaving platform. Skip, receiving aggregates from truck at ground level, is raised by power up an extension track to charge drum. Pug-mill mixing action, uniform oil distribution, and accurate temperature control, assure even-texture mix every batch. With non-tilting drum and 7-second discharge, operator easily loads mixed batch into trucks. As portable units mounted on pneumatic tires, these mixers handle direct pouring on patch work, load wheelbarrows, or discharge to conveyor belt for stockpiling. Special tower loader attachment also lets you load directly into trucks from ground level. Your Kwik-Mix distributor can show you many more cost-cutting ideas. See him, or write us now for catalog.

PARSONS COMPANY • NEWTON, IOWA
KOEHRING SUBSIDIARY

KWIK-MIX COMPANY • PORT WASHINGTON, WIS.
KOEHRING SUBSIDIARY

Economize with



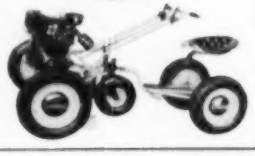
Tax dollars go farther when invested in sturdy Eclipse lawn mowers. Years of dependable service cut operating and maintenance costs to a minimum. Be sure to check the outstanding features of Eclipse before placing your next order for lawn mowers.

Eclipse power mowers give you *all six features* considered essential for efficient, trouble-free mowing.

1. Power driven wheels.
2. Power driven reel.
3. Power driven sharpener.
4. Positive action clutch.
5. Finger-tip controls.
6. Dependable 4-cycle engine.

ROCKET (20")—The popular favorite because of its extreme operating economy and mowing perfection. Finger-tip control, heavy duty reel, oil tempered knife and natural grip all-steel handles are among distinctive features. Standard, Lo-Cut and Hi-Cut Models.

ROLLOWAY (25")—The Rolloway is preferred for larger mowing areas. Automotive-type differential and full-swivel caster wheel provide easy maneuverability in hard-to-reach places. There's plenty of power for slopes and terraces.



SPEEDWAY (32")—Fastest by far, this model mows a 32" swath, 200 yards long per minute by actual stop watch timing. Unmatched for time and money saving mowing of large areas. Sulky—optional extra.

PARKHOUND (21")—Unmatched for constant heavy-duty mowing, this model gives excellent service in small parks, cemeteries and large lawns.

Eclipse
THE WORLD'S BEST LAWN MOWER

ECLIPSE 1611 Railroad Street, Prophetstown, Illinois
Nationwide Warehouse Service

HAND
STORAGE BATTERIES

EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . heavy glass mats . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

Prices start $26.50 (Group 2,H)

Hand Laboratory, Nyack, N. Y.
FOUNDED 1930

The Facts About Activated Alum

*Acid-treated insolubles weight the floc—give faster settling.

*High alumina content.

*No interruption to shipments since it was first introduced.

*Used and preferred by 274 municipalities and industries for over 14 years.

Activated Alum Sales Corp.
316 Wyndhurst Avenue
Baltimore 10, Md.

THE HERSEY COMPOUND METER

The leader in its field to-day as it has been for over forty years, the Hersey exclusive design has often been imitated, but never equaled. The name Hersey on a Compound Meter is your best guarantee of accurate and dependable service at low maintenance cost.

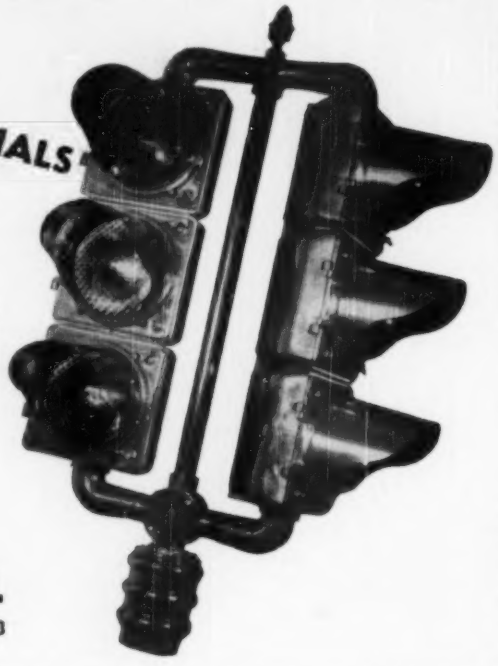
All-Bronze Cases 2" to 6"

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

AUTOFLOW TRAFFIC SIGNALS



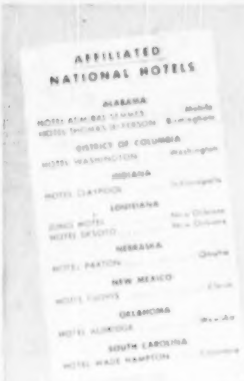
- Universal mounting and adjustment
- Modernistic and streamlined in design
- Dust and weather proofed throughout
- Lightweight sectional construction
- Sections and parts 100% interchangeable
- Span-wire, mast-arm, bracket, pedestal or pipe mounting
- Spun aluminum Alzak reflectors
- Adjustable lamp focusing
- No tools required for inspections or adjustments

For Further Information, write or wire

SOUTHERN SIGNALS, INC.

222 Beach Street — Box 1303

Shreveport, Louisiana



Your host in the nation's capitol . . .

Hotel WASHINGTON

Excellent accommodations are yours at Hotel Washington. Air conditioned throughout, comfortable furnishings, marvelous food and courteous service . . . all combined to make your stay in Washington, D. C., most enjoyable. Hotel Washington combines international sophistication with hospitable informality to make you feel "at home" at the Washington.

HOTEL MONTICELLO
VIRGINIA

HOTEL WADE HAMPTON
SOUTH CAROLINA

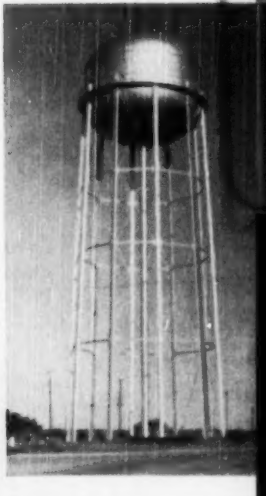
AN AFFILIATED NATIONAL HOTEL

WHERE *Appearance* COMBINES WITH *Economy*

PITTSBURGH • DES MOINES

Double-Ellipsoidal *Elevated Steel Tanks*

Over a wide range of capacities up to a million gallons, the Pittsburgh-Des Moines Double-Ellipsoidal design offers low investment cost, excellent appearance and economical performance. It is one of the several P-DM Elevated Steel Tank types, meeting every water storage requirement.



Write for your free copy of our latest 24-page brochure, detailing many important aspects of modern water storage.

PITTSBURGH • DES MOINES STEEL CO.

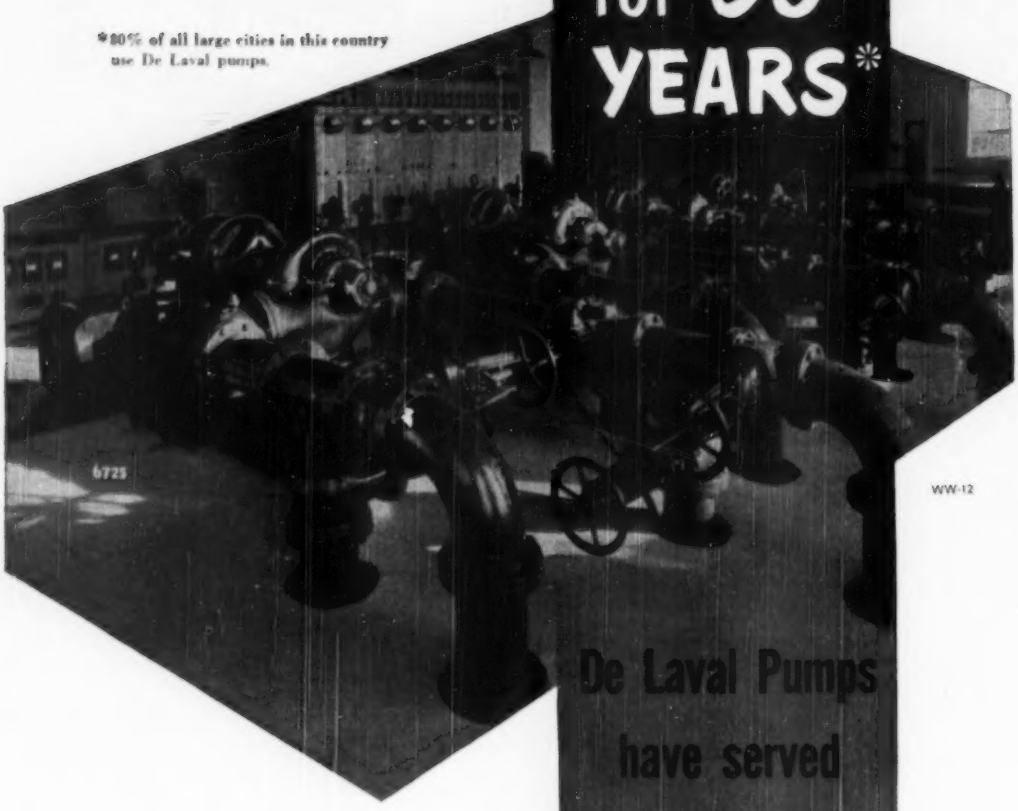
Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25).....3412 Neville Island
NEW YORK (7)...Room 915, 270 Broadway
CHICAGO (3), 1216 First National Bank Bldg.
SANTA CLARA, CAL.....619 Alviso Road
DES MOINES (8), 913 Tuttle Street
DALLAS (1), 1217 Praetorian Bldg.
SEATTLE.....920 Lane Street

for 39 YEARS*

*80% of all large cities in this country use De Laval pumps.



WW-12

De Laval Pumps have served Oak Park (ILLINOIS)

The first De Laval pumps purchased by the City of Oak Park were installed in 1911. Two of these pumps, together with six other De Laval units purchased subsequently, deliver an average of six million gallons daily to the water mains of that city.

DE LAVAL

Write Dept. 10-12-H

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

A **new** MULTI-PURPOSE UTILITY DRILL

FOR **PLANT MAINTENANCE**

A time-saver and a cost-saver for every plant maintenance crew — the new Gardner-Denver S17 Utility Drill is a full-fledged, self-rotating pneumatic hammer drill that weighs only 19 pounds. It's ideal for placing anchor bolts, for running conduit, cable, pipe, and for many other jobs.

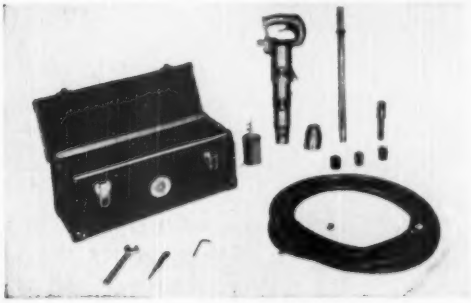
Does a man-sized job — The lightweight S17 does a full day's work — without tiring the operator — thanks to balanced weight and power.

Unusually versatile — Drills concrete, brick or stone — with standard drill steel (⅞" hex. x 3¼"). Takes standard star drills — with star drill adapter. Converts to chipping hammer or pick — special feature stops rotation.

Safe and easy to use — Convenient hand-form "D" handle. "Safety First" trigger throttle. Easy hole starting — on partial feed position.

Other big S17 features — Standard ⅞" hex. x 3¼" chuck. Trouble-free coil-spring-type steel retainer. Effective lubrication from integral oil chamber. Also available with blower attachment and standard plug drill chuck for dimension stone work.

UTILITY DRILL KIT — IN HANDY CARRYING CASE



Includes complete S17 Utility Drill and accessories: 14" drill steel—three rock bits, sizes 1⅞", 1⅝", 1⅞" — star drill adapter —chuck driver lock pin— drift key—Allen wrench —end wrench—oil can— and 25 feet of ½" air hose, with fittings.

Try the new Gardner-Denver Utility Drill today—you'll want one for every maintenance crew in your plant.

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois.
In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario.

Since 1859

STEEL STRAPPING

FOR STREET SIGNS

Send for information pertaining to our Introductory Offer—Material to attach 50 signs—including tools, dispensing reel, strapping, brackets, and bolts.

Erection crews like the greater convenience of this A. J. Gerrard method and budget wise department like the economy it brings.

SS-4

STEEL STRAPPING

A. J. Gerrard & Co.

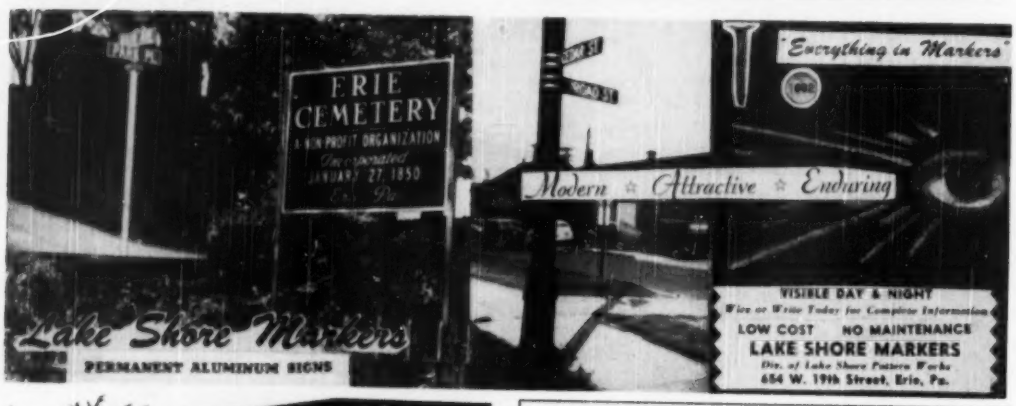
1952 HAWTHORNE DRIVE • MELROSE PARK, ILL.
(Chicago Suburb)

THE M & M PORTABLE BRUSH GRINDER

Keep your city clean and gain valuable fuel at the same time. The M & M Portable Brush Grinder will produce this fuel "on the job." There is no necessity for hauling bulky loads of brush to the dump where they must be burned or become the unsightly home of vermin. Instead, with the Portable Brush Grinder, small chips are produced which are excellent as auxiliary fuel in the power plant or incinerator. Write for complete information.

MITTS & MERRILL

104 HOLDEN STREET • SAGINAW, MICHIGAN



your city deserves the best—
UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates—prompt mail service. WRITE TODAY FOR FREE CATALOG

"Bronze Tablet Headquarters"
UNITED STATES BRONZE SIGN CO., INC.
570 Broadway, Dept. AC, New York 12, N. Y.

LOW-COST WATER
from Caisson Wells

Caisson Wells yield large capacities of low-cost water. Well fields 10 to 150 feet deep are tapped economically, especially when in contact with a surface water body. Lifelong installation—requires practically no maintenance.

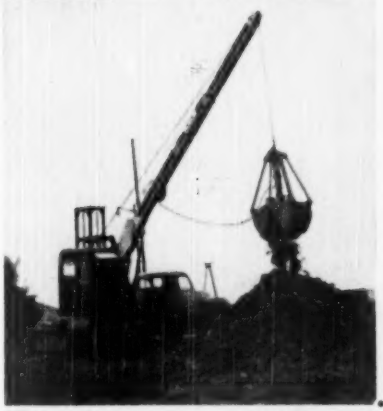
Write for information

CAISSON WELLS, INC.
Ground Water Engineers and Contractors
33 W. 42nd Street, New York 18, N. Y.

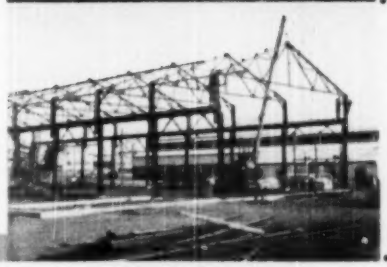
Hydrocranes are *Made-To-Order* For Our Work

Telescoping Boom permits working right under tree branches. Here the city's H-3 sets a 4,800-lb. section of 30-in. pipe.

Precision Hydraulic Control is a big safety factor in pipe work. Here the crane sets a 24-in. cast-iron valve into place smoothly, easily.



Hydraulically Operated Clamshell equips the city's Hydrocrane for excavating shale on a 36-in. valve chamber setting job. Outriggers extend and retract in seconds from operator's station.



Other Departments use the crane, too. Here it sets a 60-ft. roof truss into place. Operation is extremely simple — hand levers only, no foot controls.

...Says a Southwest City's Water Dept. Engineer

"We find our two Bucyrus-Erie Hydrocranes made-to-order for water department work," says the Water Dept. Engineer of a large southwest city. "These fast traveling rigs are adaptable to practically any type of crane job."

Besides jobs illustrated here, Hydrocranes save time on many other municipal jobs, such as:

- Street patching, sidewalk repairing
- Catch basin cleaning
- Ash, rubbish, garbage, snow removal
- Extending municipal services
- Loading, unloading cars or trucks
- Handling materials in yards, on locations
- Excavating for leaks; miscellaneous clean-up work

Two sizes: ¼-yd. 2-ton H-2 and ⅜-yd. 3-ton H-3. Send the coupon for full details.

BUCYRUS-ERIE HYDROCRANE DIVISION
South Milwaukee, Wisconsin

BUCYRUS ERIE HYDROCRANE 65H50

BUCYRUS-ERIE HYDROCRANE DIVISION
South Milwaukee, Wisconsin
Gentlemen: I want more information on the time and money saving possibilities of the Hydrocrane

Name .....
Company .....
Address .....
City ..... State .....

Specify **386**
12 to 18 oz. serges
Tropical weight for shirtings · 18 oz. whipcord for breeches
•
Also 20 and 30 oz. beavers and other standard fabrics

METCALF BROS. & CO. 45 EAST 17th STREET, NEW YORK CITY

Now there's a new and more efficient way for institutions, park departments, business and industrial concerns to get the most for their snow removal dollar. Maxim Snow Throwers are self-propelled, easy to operate, whirl the snow away, leaving no built-up banks. Thoroughly winter-proven by hundreds of users from Coast to Coast.

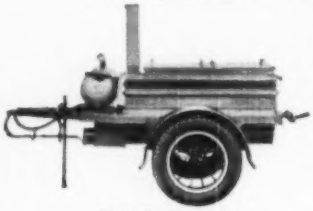
SEND COUPON FOR DETAILS

THE MAXIM SILENCER COMPANY
84 Homestead Ave., Hartford 1, Connecticut
Canada: Maxim-Ide Machinery, Ltd., Montreal, Que.

Name _____

Address _____

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.



For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin 87.

CONNERY CONSTRUCTION CO.
4000 N. Second Street Philadelphia 40, Pa.

"GUNITE" CONCRETE (Since 1915)
SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Road Kansas City 6, Missouri

District Branch Offices
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Branch Offices: DENVER • DALLAS • NEW ORLEANS
See our catalog in Sweet's

COME SUMMER'S SUN . . . OR WINTER'S COLD

Even under the hottest summer sun, roads built with TARVIA* road tar are glare-free and restful on the eyes. They take the strain out of driving. Self-healing, they stay smooth for easy riding. They will not wave, roll, push, or bleed.

Winter's snow and ice melt faster, thanks to the heat-absorbing black surface of roads built with TARVIA road tar. Snow removal is facilitated. And, furthermore, neither calcium chloride nor sodium chloride has any adverse effect on TARVIA road tar surfaces.

Barrett's 46 years of experience in road building, maintenance and repair is yours for the asking. *Ask the Barrett field man.*

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

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Philadelphia • Boston • Rochester
Youngstown • Ironton, O. • Syracuse • Buffalo
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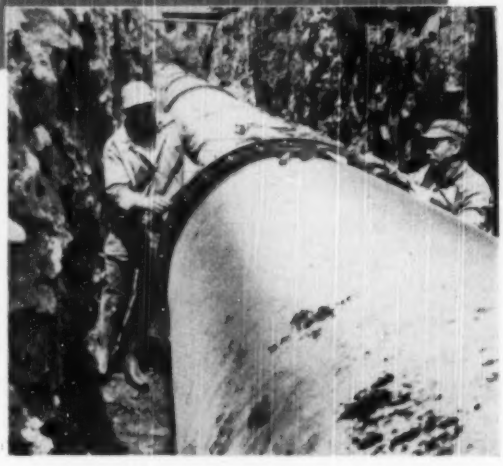
In Canada: THE BARRETT CO., LTD.
Montreal • Toronto • Winnipeg • Vancouver

The slightly granular, "tractionized" surface of a road built with TARVIA road tar gives tires a better grip.

Barrett Tarvia* ROAD TAR

*Reg. U. S. Pat. Off.

A Dresser-coupled steel line delivers water cheaper...



In Jersey City, N. J., this 12,000-foot line, 48" in diameter, was speedily installed in a busy, built-up section. It tied in with two other steel mains laid in 1909 and 1918. Both of the older lines were found to be in excellent condition.

The cheapest way to deliver water to the place where it turns into revenue is with a Dresser-Coupled steel line—the line that

- **Cuts installation costs**
- **Cuts leakage losses**
- **Cuts maintenance costs**

Contractors like Dresser-Coupled steel lines because with lengths of steel pipe up to 50 feet, joints are fewer. They are *factory-made* joints, virtually foolproof. Dressers will take deflection up to 5° at each joint, eliminating the need for many costly specials. Consequently, schedules are easier to plan and easier to stick to and the job gets done faster. Crews are smaller and more easily supervised. The only tool needed to install Dressers is a wrench—no costly or hazardous equipment.

Waterworks officials like Dresser-Coupled lines because they get a better line at lower cost—a line with the bottle-tight dependability of flexible Dresser Couplings, the longevity of tough, shatterproof steel pipe, the sustained carrying capacity of modern glass-smooth linings.

From every angle—a Dresser-Coupled steel line delivers water cheaper. Ask your Dresser Sales Engineer for further information, or write today for literature.

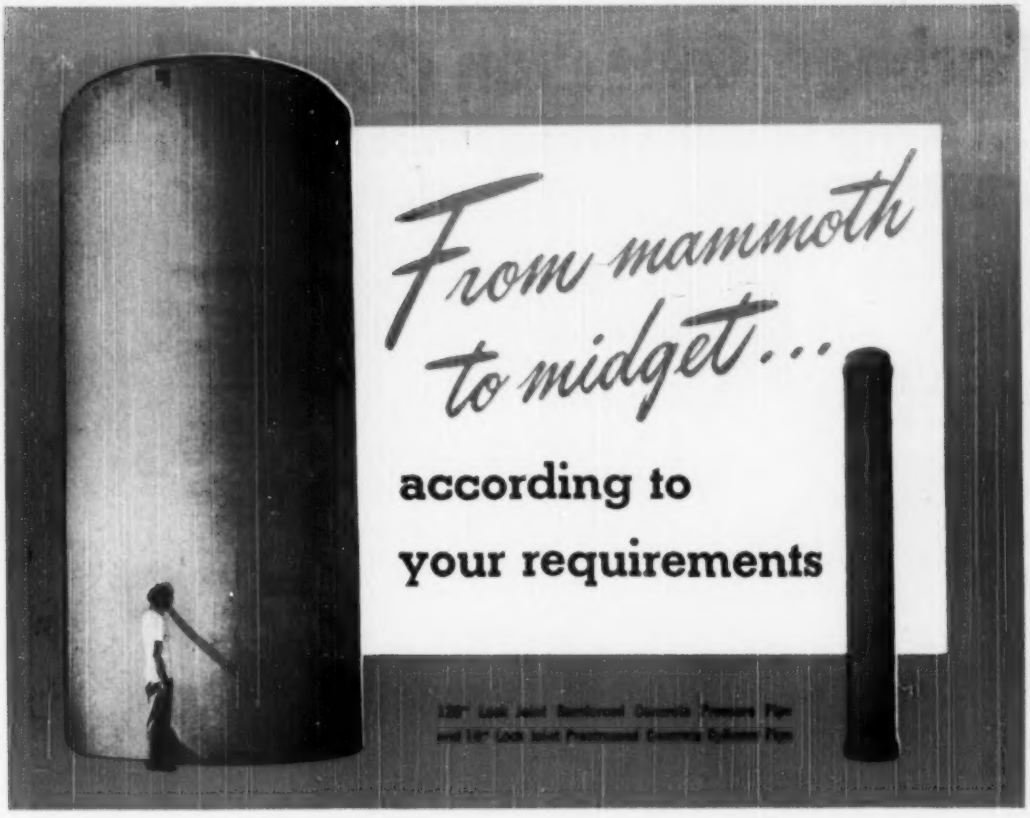
BE SURE you get the best line at the best price. Put steel pipe and Dresser Couplings in your specifications.

DRESSER

"FLEXIBLE-TIGHT"

COUPLINGS

Dresser Manufacturing Division, 59 Fisher Ave., Bradford, Pa. (One of the Dresser Industries)—In Texas: 1121 Rothwell St., Houston. In Canada: 629 Adelaide St., W., Toronto. Sales Offices: New York, Philadelphia, Chicago, Houston, San Francisco.



Whether your daily water consumption demands be 3,000,000 gallons or hundreds of times that figure, Lock Joint Pipe Company is prepared to provide a supply line for your requirements.

In the last few years the Company has supplied not only hundreds of miles of large diameter pipe but also more than a million feet of 16" to 24" pipe for municipalities and industry. This has been made possible through the establishment of three permanent manufacturing plants. Lock Joint Concrete Pressure Pipe from 16" to 42" in diameter, produced at these plants, can be shipped economically to all parts of the country —for both major installations and minor extensions.

Our representative will be glad to discuss with you any water supply or transmission project which calls for pressure pipe 16" in diameter or larger. You will find that Lock Joint Concrete Pressure Pipe's superior characteristics of long life, continuous high flow and negligible upkeep will recommend it above all others for any permanent water supply installation.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

Garbage Collection *Costs Drop*

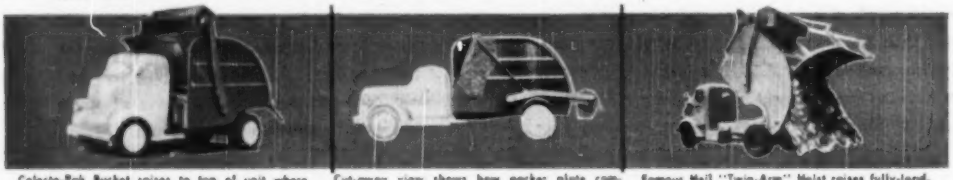
. . . Service Improves when you use Heil Colecto-Paks

Totally-Enclosed Steel Body! Garbage is out of sight and smell.
"Waist-High" Loading Height! Only 35 inches. Crews load easier, faster, with less strain.
Double Capacity! Packer plate compresses 24 cu. yd. of wrapped garbage in 12-cu. yd. body.

City after city, town after town count on hydraulically-operated Heil Colecto-Paks to speed up garbage collection, keep it clean and sanitary.

Before purchase, in many cases, Heil Colecto-Paks proved themselves in tough competitive tests. They also proved — in actual service — that they cost less to operate and maintain . . . that they are smooth-working, quiet, dependable.

Take the initiative and the credit for eliminating the unsightly and unsanitary features of "open-body" collectors in *your* community. Specify Heil Colecto-Paks on your next bid.



Colecto-Pak Bucket raises to top of unit where it automatically dumps and then returns to loading position — all in less than one minute.

Cut-away view shows how packer plate compresses load to use body space most efficiently. This cuts down number of trips to incinerator.

Famous Heil "Twin-Arm" Hoist raises fully-loaded body to 45° dumping angle in 12 seconds. Tapered body assures fast, clean discharge.

Heil Platform Conversion Hoists

Heil Bodies and Hoists

Heil Elevating Tailgate

Heil Dozers

Heil Colecto-Paks are available in 9- and 12-cu. yd. capacities. See how both sizes help you get the most out of your budget dollars — write today for Bulletin BH47109.

THE HEIL CO.

Dept. 4311O 3043 West Montana Street, Milwaukee 1, Wisconsin

Factories: Milwaukee — Hillside, N. J.

District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle.

BH-149

CLAY PIPE PROTECTS 'decision buyers'

WHERE products are "decision-bought" — by engineers, consultants, or men in public life — professional reputations are constantly at stake. The choice of Vitrified Clay Pipe protects those reputations, because Clay Pipe *never wears out.* It can be specified with safety on *every* sewerage or drainage job . . . for present or future wastes, for the soil conditions of tomorrow or fifty years from now. "Bad guesses" are impossible with Vitrified Clay Pipe. You can disregard sulphide controls and the effects of sewage temperature, velocities, and age of sewage, because Clay is immune to chemical action. It's the only pipe that's *sure* to protect *your* decisions . . . by lasting forever!

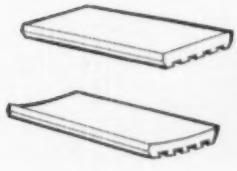
NATIONAL CLAY PIPE MANUFACTURERS, INC.
100 North LaSalle St., Room 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
1105 Huntington Bank Bldg., Columbus 15, Ohio
206 Connally Building, Atlanta 3, Georgia

SPECIFY

Vitrified

CLAY PIPE

CLAY PIPE NEVER WEARS OUT!



LINER PLATES

STANDARD-STRENGTH CLAY PIPE

CLAY PIPE FITTINGS

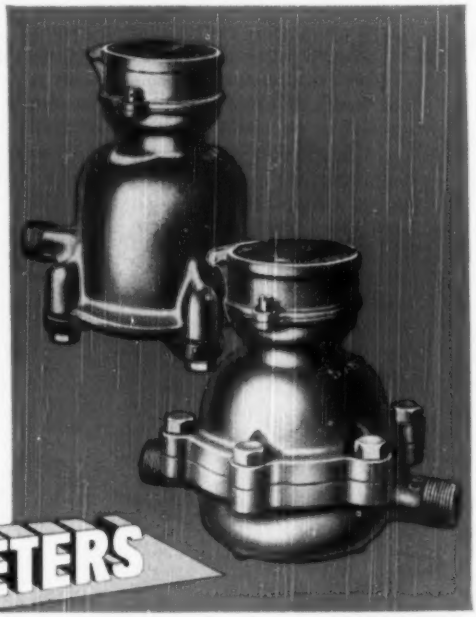
C-450-3

"City highly endorses Badger Meters and Testing Machines"

That's what the mayor of one Illinois city wrote to another, adding: "Operation of these meters has always been satisfactory and maintenance-cost very reasonable . . . in our meter shop, a Badger Testing Machine enables us to see the quality of our work, which was not possible before we bought the Testing Unit."

In over 5000 communities, waterworks men know that "It pays to BUY BADGER".

You will find a Badger Meter size and type for every waterworks service. Shown here are Model SC-IOT (for warm climates), and Model A-IOT (for cold climates) . . . sizes ⅝" to 1¼" . . . other models in sizes up to 12". Write for complete information and prices.



Every waterworks superintendent should have the NEW BADGER CHART No. 689 (Practical Plan for Meter Storage Rack). WRITE today for this chart...no charge.

BADGER METER MFG. CO., MILWAUKEE 10, WIS.

BRANCH OFFICES:
NEW YORK CITY • PHILADELPHIA • WORCESTER, MASS. SAVANNAH, GA. • CINCINNATI • CHICAGO • KANSAS CITY, MO. • WACO, TEXAS • SALT LAKE CITY, UTAH PORTLAND, ORE. • SEATTLE, WASH. • LOS ANGELES

BADGER Water METERS

ACCURACY • LOW-COST MAINTENANCE • DURABILITY • SENSITIVENESS

You'll go for it, too!

Mack Type 85, 75-foot aerial ladder truck recently delivered to Niles, Michigan.

HERE ARE SOME RECENT MACK AERIAL ORDERS:

Bala-Cynwyd, Pennsylvania
Ballston Spa, New York
Baltimore, Maryland (2)
Bay Shore, New York
Boston, Massachusetts
Hudson Falls, New York
Lafayette, Indiana
Little Falls, New York
Massapequa, New York
Normandy, Missouri
Niles, Michigan
North Plainfield, New Jersey
Painted Post, New York
Plainfield, New Jersey
Stamford, Connecticut
State of New York—Manhattan State Hospital
State of New York—Willard State Hospital
West Hempstead, New York

What are *you* looking for in your next aerial ladder truck? Smooth and fast performance of both ladder and truck? One-man, *jam-proof*, all-hydraulic controls? Safety and flexibility? Compact design—adapted to modern traffic and existing quarters?

That's what you'll get with the modern Mack aerial—and more! You'll get the proved power and dependability of the rugged Mack chassis and famed Thermodyne engine. Eye-winning appearance yet with easy accessibility of ground ladders and truck equipment. And near-at-hand service from Mack's nation-wide network of branches and distributors.

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FIRE APPARATUS
Outlasts Them All

MACK MANUFACTURING CORPORATION
Fire Apparatus Division
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Factory branches and distributors for service and parts in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS—500 TO 1500 GPM... SQUAD AND HOSE WAGONS... AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

THE ANSWER TO THE ENGINEER'S PRAYER

BREAKS CONCRETE FASTER | TAMPS BACKFILL BETTER AND FASTER FOR LESS

THE NEW, MORE POWERFUL

MIGHTY "B" MIDGET

Fastest Pneumatic Concrete Breaker and Backfill Tamper. Replaces all the dirt removed after pipe has been laid. Gives you high density compaction. Ready to repave immediately. No temporary paving. No soil dirt to haul away. Due to high density compaction, requires little asphalt in replacement. Cuts cost of tamping and breaking of concrete many times. Can be worked manually or automatically. 160 lb. Compressor for full capacity or 105 lb. Compressor for ½ capacity. For further particulars, see your nearest dealer, or write Department D.

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GOLDAK'S great 2 in 1 value!

You demanded it! Goldak produced it! The "Dualtronic"... an electronic instrument that does the work of 2 machines effectively and efficiently. One man simple operation! Ruggedly built! Lightweight! Guaranteed!

Write for FREE literature.

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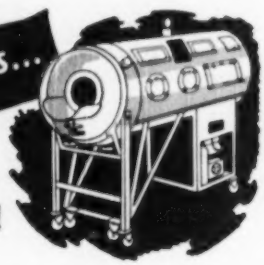
utterly useless...



paralyzed by power failure!

It is easy to see why hospital authorities are not likely to worry about electrical power supply. It almost never fails. But when it does, results easily may be catastrophic! It's *safer to be sure*—by having a Fairbanks-Morse emergency generating set ready to take over!

Because standby power service costs so little, means so much even for small hospitals, no hospital should be without a Fairbanks-Morse generator! They're in use now in hundreds of hospitals. Let your Fairbanks-Morse dealer give you full information about a generator for your hospital. Or, mail the coupon for full facts today.

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Send us illustrated literature describing your emergency generating sets for hospitals.
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repaired rapidly and economically with "GUNITE"

Is your reservoir leaking? You can't afford leaks when there is a water shortage or at any other time. "Gunite" is the answer. Here is a high-quality sand cement product, pneumatically applied quickly and economically by experienced workmen, to solve the problem of disintegration.

We welcome inquiries from those having concrete restoration problems of any kind.

OUR OPERATIONS ARE NATION-WIDE

Send for 48-page "Gunite" Bulletin

PRESSURE CONCRETE CO.

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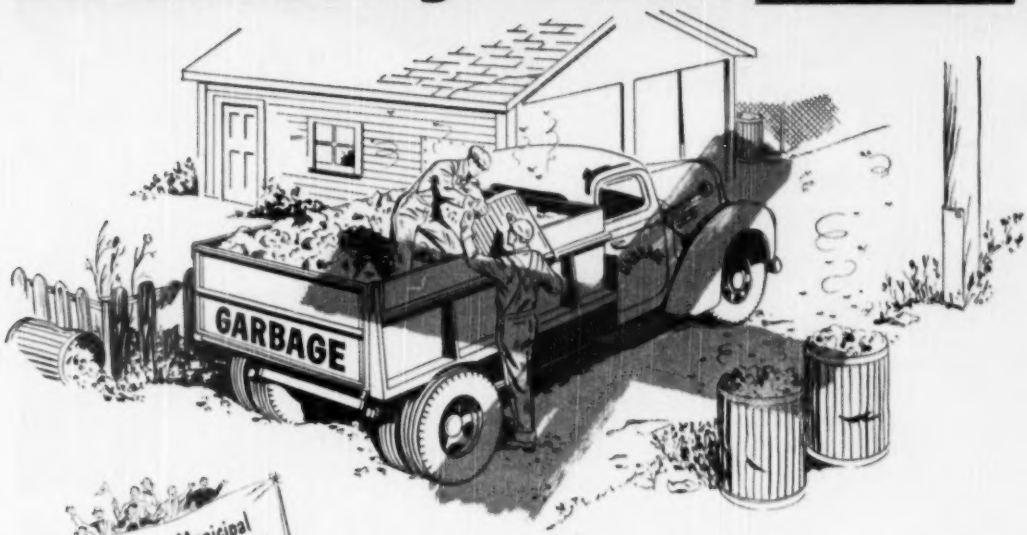
Banish Garbage Worries Forever!



In most communities garbage collection is a headache . . . and a costly headache at that. But, it needn't be. The Hotpoint Municipal Plan of Garbage Removal disposes of your garbage collection worries right along with the garbage!

The Hotpoint Municipal Plan provides a method of garbage disposal which eliminates the need for garbage cans, garbage trucks or a garbage collection budget.

A complete, factual presentation of the Hotpoint Municipal Plan, based on experience and written specifically for municipal officials, is available for your study. This plan is being presented at the request of municipal governing bodies all over the country. We shall be happy to present it to you.

Your community will welcome the opportunity to enjoy:

- *A convenient, new and modern garbage removal system*
- *Health protection to the members of all families.*
- *Fly and rat pest reduction.*
- *Garbage collection cost reduction.*
- *More digestion gas for use and sale.*
- *Elimination of food waste before it becomes garbage.*
- *Elimination of alley garbage can.*
- *Elimination of garbage collection problems.*
- *Elimination of garbage odors.*
- *True sanitation for your town.*

And—it saves you money!

The Hotpoint Disposall® garbage disposer, is easy to install in any sink . . . convenient . . . safe . . . odorless and economical. Simple to operate . . . keeps kitchens, sinks and hands clean. Does not overload or clog sewer systems. Can also be used with septic tank.

HOTPOINT Disposall Dept. A.C.
5600 West Taylor St., Chicago 44, Illinois

We would like to have more information on the Hotpoint Municipal Plan of Garbage Removal.

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Address_____

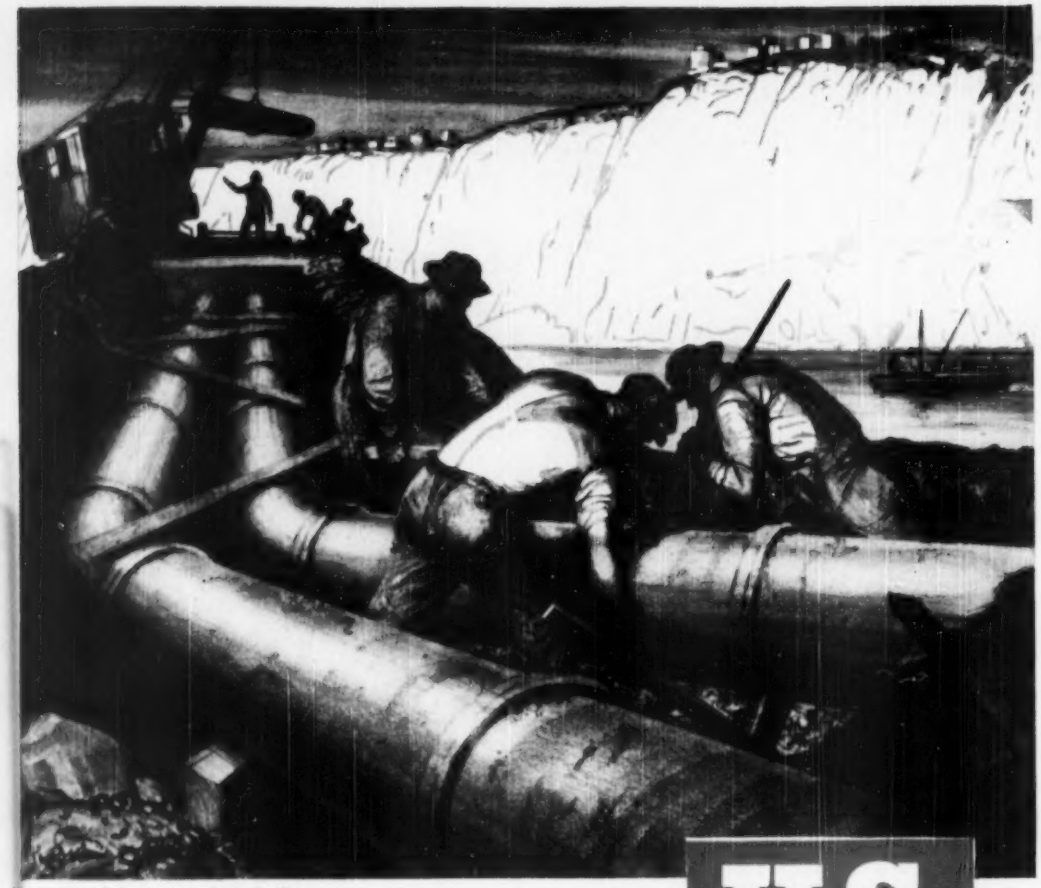
City_____ State_____

Title_____

Hotpoint Inc.

(A General Electric Affiliate)

5600 West Taylor St., Chicago 44, Illinois



Lithographed on stone by James E. Allen

U.S. cast iron PIPE

FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

Cast iron pipe is tough, husky, but not exactly handsome. What it lacks in eye appeal it makes up for in dependable quality. To see that our product's reputation for quality is lived up to—and to strive for still higher quality—this Company has made substantial investments in facilities for *quality control* and for *research and development*.

The recently completed Research Laboratory and Developmental Foundry at Burlington is an important contribution to a long-range program of process and product development. **United States Pipe and Foundry Company, General Offices: Burlington, N. J. Plants and Sales Offices Throughout U. S. A.**

Little Amber says:
IT ALL ADDS UP TO
EAGLE
SLO TAPER
Reflector is spring-mounted (no strain on the reflector) against neoprene gasket to reduce shock and equalize pressure—forming a perfect seal
Permanent Interwoven Cotton Gasket
Cork Gaskets
Cork Gasket
Rock Ring Neoprene Gasket (does not harden or stick)
Gasketed 5 Times
Absolutely dust tight
A narrow, high-intensity beam makes the beacon visible from a long distance
A secondary wide-spread beam of lower intensity for the benefit of persons within a few hundred feet
Peak Optical Efficiency!
Optical Unit is not a spotlight. It is designed to distribute light proportionately over full surface of lens
SLO-TAPER DISTRIBUTION

Dust-tight construction—originated by EAGLE and introduced to the industry in 1935.

The optical unit exceeds ITE Specifications.

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13 EAST 40th ST., NEW YORK 16, N. Y.

In Canada: **The Northern Electric Company Belleville, Ontario.**

EAGLE SIGNAL CORPORATION *Moline, Illinois*

HOW THE CITY OF ROCHESTER SAVES $2000.00 EVERY COVERAGE BY USING STERLING ROCK SALT FOR SNOW and ICE REMOVAL!

EDWARD F. NIER
Commissioner of Public Works, Rochester, N. Y.
cites remarkable advantages of
STRAIGHT STERLING ROCK SALT
versus Salt and Cinder Mixture

✔ **SAVED $5.42 PER MILE BY USING STRAIGHT ROCK SALT**

✔ **SAVED $2,005.40 EVERY COVERAGE BY USING STRAIGHT ROCK SALT**

------ CITY OF ROCHESTER, N. Y. ------

Comparative Costs: STRAIGHT ROCK SALT vs. SALT AND CINDERS

SALT-CINDER MIXTURE — (1947-48) — (370 MILES SERVICED)		STRAIGHT ROCK SALT — (1949-50) — (370 MILES SERVICED)	
COST OF CINDERS Delivered Storage Yard, Per Cubic Yard	$ 1.40	COST OF SALT ($9.50 Per Ton Delivered Unloaded Storage Yard)	$ 9.50
COST OF PILING Per Cubic Yard	.20	COST OF PILING SALT Per Ton	.20
COST OF SALT ADDED (150# Per Cu. Yd. Cinders), Per Cubic Yard	.67	COST OF LOADING SPREADER TRUCK At Time of Storm, Per Ton	.20
COST OF PILING SALT Per Cubic Yard	.20	COST OF SPREADING SALT (12 Tons Salt, 1000# Per Mile, Truck Cost $ 30 Per Mile, Labor $2.20 Per Hour Per Ton)	.85
COST OF LOADING SPREADER At Time of Storm Per Cubic Yard	.20	COST OF SALT LAID Per Ton	$10.75
COST OF SPREADING Salt-Cinder Mixture Per Cubic Yard	.43	SPREADING RATE: 2 Miles Per Ton	
SPREADING COST PER CUBIC YARD	$ 3.10		
Rate: 3 Yds. Per Mile	3		
COST PER MILE FOR SALT-CINDER MIXTURE LAID DOWN	$ 9.30		
ADD: Spring Cleaning Cost to Remove Cinders from Basins & Receivers	1.50		
TOTAL COST PER MILE FOR SALT-CINDER MIXTURE	$10.80	TOTAL COST PER MILE USING STRAIGHT ROCK SALT	$ 5.38

OVER $2000.00 SAVED EVERY COVERAGE

Order **STERLING** *Auger Action* **ROCK SALT** *Now!*

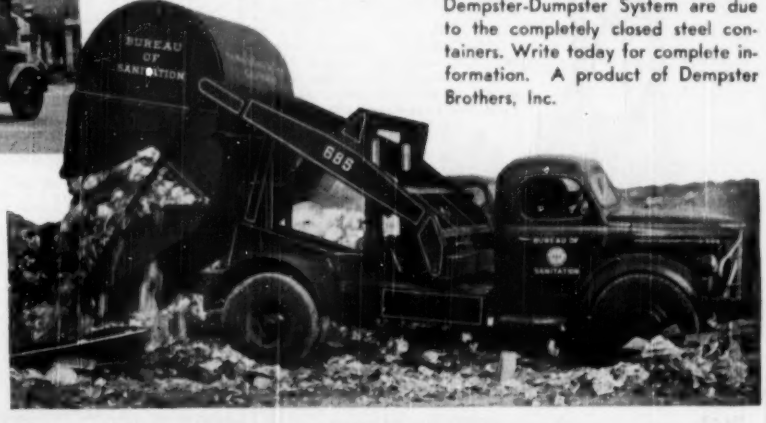
INTERNATIONAL SALT COMPANY, INC.

SCRANTON, PA.

Streets and Alleys Stay Clean *Automatically*—

—With the DEMPSTER DUMPSTER SYSTEM

Cities, large and small, are doing what you can do to keep your streets and alleys free of rubbish, litter, rats, flies and scavengers . . . and at tremendous savings! Baltimore, Boston, Richmond, Birmingham, Pensacola and scores of other large and small municipalities have adopted this modern Dempster-Dumpster System by which one man and one truck hoisting unit serve a large number of detachable containers. These containers hold 8 to 10 cu. yds. of trash and rubbish, and, bear in mind, are always loaded by those who produce the trash, ready for driver to haul away. If you use the old-fashioned, costly and unsanitary open truck method of collection, it will pay you to investigate the Dempster-Dumpster System. Containers are placed at convenient accumulation points at housing projects, schools, apartment and market areas, factories and down-town stores. When a container is filled, it is picked up by the truck hoisting unit and hauled to disposal area where container is automatically dumped by hydraulic controls at driver's seat. The sanitation and cleanliness of the Dempster-Dumpster System are due to the completely closed steel containers. Write today for complete information. A product of Dempster Brothers, Inc.



The amazingly simple stages of picking up, hauling and dumping a 10 cu. yd. Apartment Type container are shown in the three photos.

DEMPSTER BROTHERS, 8110 Dempster Bldg., Knoxville 17, Tenn.

智者用其利器故
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OLD CHINESE PROVERB say —
"Wise man uses the best tools —therefore no wasting of time and money"

HYDRAUGER*
*Reg. U. S. Pat. Off.
Earth Boring Tool
is the proven way of saving time and money when installing pipe . . . especially under arterials . . . avoids pavement cutting.
HYDRAUGER CORPORATION, LTD.
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SAN FRANCISCO 5, CALIFORNIA
Ask for Catalog TODAY! HY-21D

new GRAVELY Snowblower
moves deep snow in close places — quickly-easily-economically!

New, revolutionary Snowblower Attachment for the powerful 5-HP Gravely Tractor ends snow removal worries!

Snow that used to be moved by hand can now be moved by POWER! . . . saving many man-hours of labor in clearing those close places — sidewalks, drives, loading platforms, etc. — quickly and efficiently. Gravely Equipment pays for itself in less than two seasons' use by time-and-labor savings!

The Snowblower is only one of 20 year-round grounds maintenance attachments for the Gravely Tractor. The Gravely has all-gear drive, reverse, simple controls, all moving parts fully enclosed.

Ask for your copy of "How to Solve Snow Removal Problems" and name of nearest dealer. Snow time is almost here — WRITE TODAY!

Gravely Motor Plow & Cultivator Co.
BOX 1173 DUNBAR, WEST VA.

FIELD TESTED FOR 29 YEARS

Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money — in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

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GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind. Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

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ADDRESS.....

Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of March 3, 1933, of The American City, Published Monthly at New York, N. Y.: September 26, 1950.

State of New York, County of New York ss.:

Before me, a Notary Public in and for the State and County aforesaid personally appeared EDGAR J. BUTTENHEIM, who having been duly sworn according to law, deposes and says that he is the President and Business Manager of the American City Magazine Corporation, Publishers of THE AMERICAN CITY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in Section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, AMERICAN CITY MAGAZINE CORPORATION, 470 4th Ave., New York 16.

Editor, HAROLD S. BUTTENHEIM, 470 4th Ave., New York 16.
Managing Editor, None.
Business Manager, EDGAR J. BUTTENHEIM, 470 4th Ave., N. Y. 16.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

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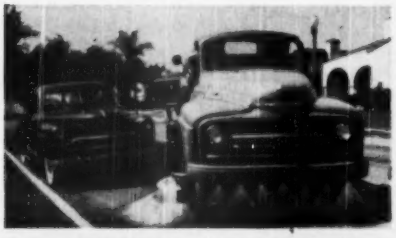
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiants' full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. AMERICAN CITY MAGAZINE CORPORATION.

Sworn to and subscribed before me this 26th day of September, 1950. EDGAR J. BUTTENHEIM, Pres.
New York County Clerk's No. 41-9493500 EDWIN WAGNER, Notary Public
(My commission expires March 30, 1952) New York Co., N. Y.

EVERY FEATURE FOR LOW COST SWEEPING

You'll say—*"Mobil-Sweeper is best,"* when you see how easily it tackles tough street sweeping assignments like deep and wide gutters—sharp curb returns—steep hills—under low-hanging trees or protrusions . . . *plus* unexcelled performance on level terrain.

COSTS LESS TO SWEEP—The Mobil-Sweeper cleans more pavement with fewer stops—because the big 2⅔ cu. yd. dirt hopper is filled to utmost capacity every time by the efficient non-clog conveying elevator. Whether your community uses the central dumping system or drives direct to the dump with each load, Mobil-Sweeper's large capacity saves money. Deadheading from city dump or service yard to sweeping area takes less time because only Mobil-Sweeper can travel at maximum traffic speeds up to 55 m.p.h., when not sweeping. Where direct trips to the dump are feasible, Mobil-Sweeper saves the expense of a follow-up truck and crew.



SWEEPS CLEANER—With the big, full-floating pickup broom and right and left gutter brooms you can sweep a 10 ft. swath . . . with pickup broom and one gutter broom a 7'3" swath. Our especially designed gutter broom whisks refuse from even the deepest gutters with a thoroughness that assures cleaner streets.

SAFEST SWEEPER TO OPERATE—Drivers are protected by a steel-top cab and shatter-proof windshields (standard equipment). Self-equalizing 4-wheel hydraulic brakes provide greater safety. And on steep hills or rough pavement you can't beat 4-wheel stability. These and many more features make Mobil-Sweeper your best buy. Write for details on

CLEANER STREETS AT LOWER COST

MOBIL-SWEEPER
DIVISION OF
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Gentlemen:

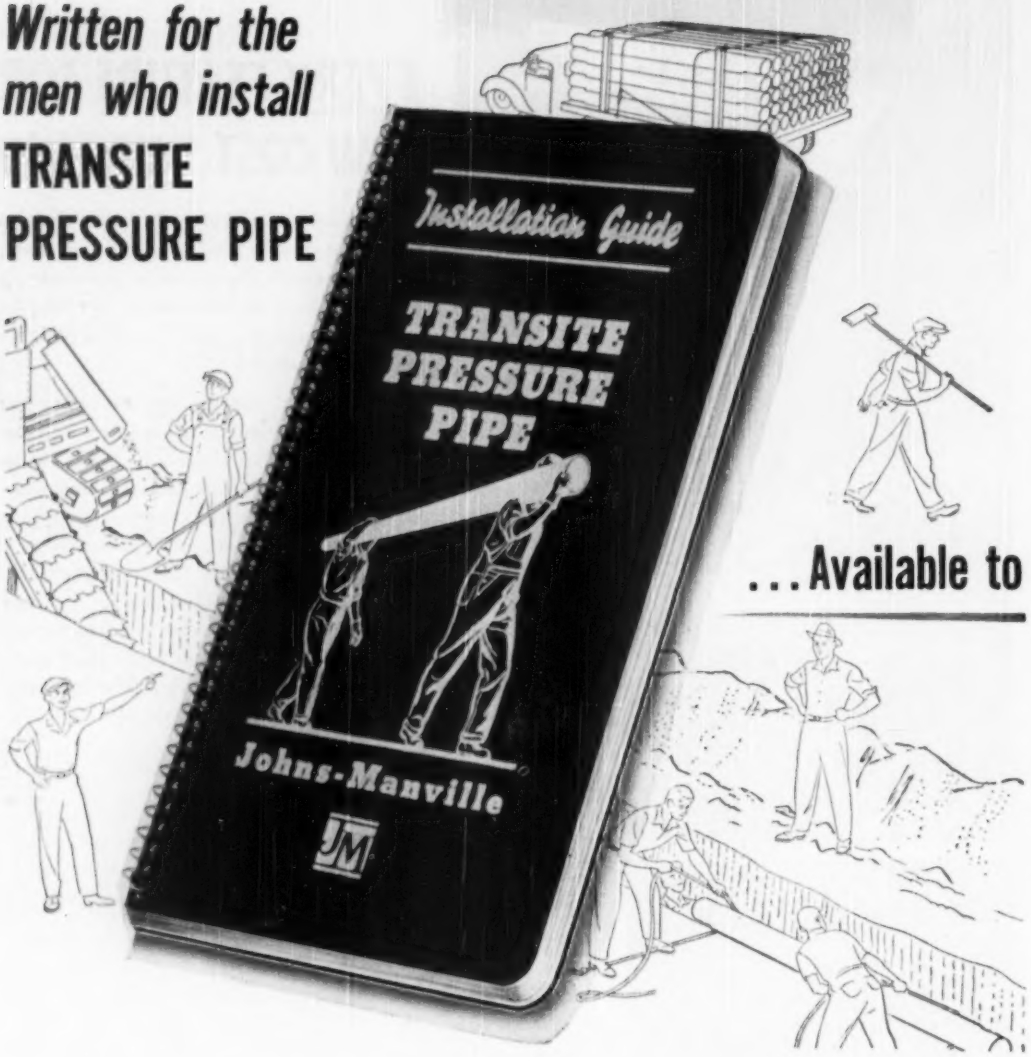
Please send catalog with complete details and specifications for the Mobil-Sweeper.

Name _____ Title _____

Address _____ City _____

County _____ State _____

Written for the men who install TRANSITE PRESSURE PIPE



. . . Available to

As its title implies, this new Installation Guide was designed especially for those who do the actual work of installing Transite* Pressure Pipe . . . a handy working tool intended to help the man in the field do a good job in an economical way.

But it answers so many questions of general interest about Transite Pipe that it is being offered, without cost, to anyone concerned with the design, construction or operation of a water system.

Send for your copy today. It will give you a new insight into Transite's many practical features that reduce water line installation costs . . . help answer some of the questions you may have about this Johns-Manville asbestos-cement pipe that is contributing to better and more economical water systems for thousands of American cities and towns.

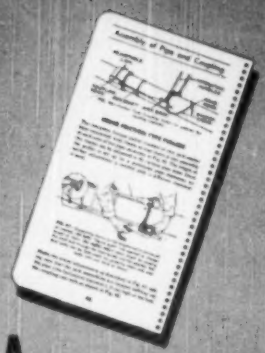
*TRANSITE is a Johns-Manville registered trade mark

JOHNS MANVILLE JM PRODUCTS

Johns-Manville TRANSITE

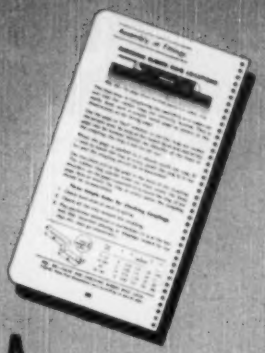
FOR BETTER

Q. *How is Transite Pipe assembled in the trench?*



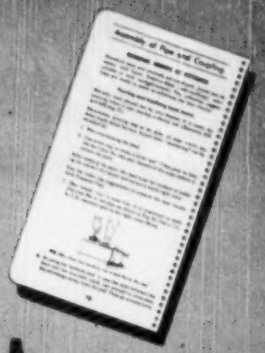
A. By means of the Simplex Coupling, a factory-made joint. See page 38.

Q. *How are joints checked for correct assembly in advance of leakage tests?*



A. By the use of a simple feeler gage as described on page 50.

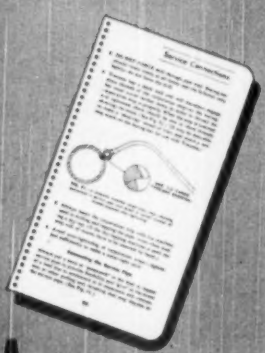
Q. *Are standard practices used for making joints at fittings?*



A. Yes—see "Making Joints at Fittings" page 78.

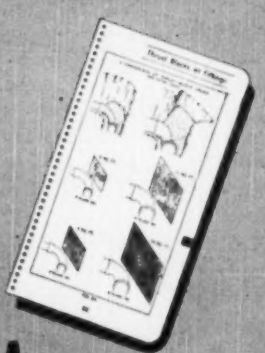
anyone who wants the answers to questions like these

Q. *Can you cut, machine and tap Transite Pipe in the field?*



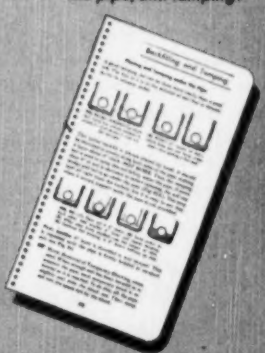
A. Yes—see "Cutting Transite Pipe" page 72 and "Service Connections" page 91.

Q. *How are size and type of thrust blocks at fittings determined?*



A. The Guide gives helpful data, including tables, construction, and location. See page 82.

Q. *What about trench preparation, supporting the pipe, and tamping?*



A. Standard methods are employed. See pages 16, 23 and 97

Just use the coupon—or write to Johns-Manville, Box 290, New York 16, N. Y. In Canada, address 199 Bay Street, Toronto, Ontario.

Johns-Manville
Box 290, New York 16, N. Y.

Please send me the Transite Pipe Installation Guide (TR-62A).

Name_____

Organization_____

Address_____

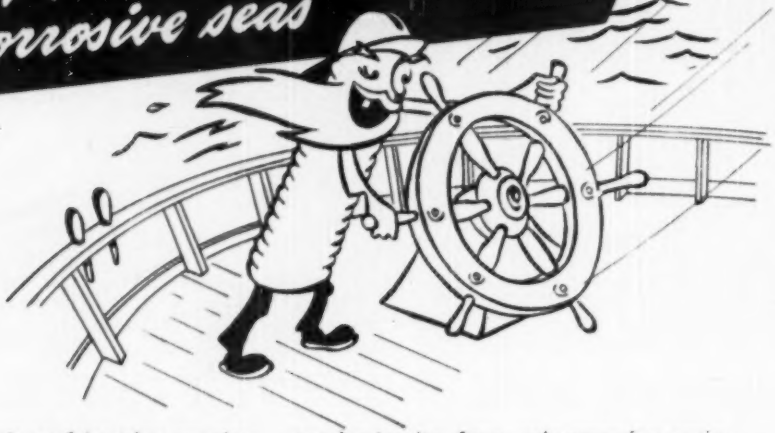
City_____ State_____

AC-11

ASBESTOS-CEMENT **PRESSURE PIPE**

WATER SERVICE

This pipe is an "Old Salt" in corrosive seas



Corrosion storm signals are flying when any pipe goes out to sea. Yet hundreds of installations prove that Armco ASBESTOS-BONDED Pipe takes salty seas in stride. That's because it is built to withstand severe corrosive service.

Whether it's sewage, industrial wastes or some other corrosion problem, Armco ASBESTOS-BONDED Pipe affords utmost protection inside and out. The base metal is protected by asbestos fibers, securely embedded in the galvanizing and impregnated with a special bituminous seal coat. This protective material won't break or crack off. It is rotproof and non-deteriorating. Long, maintenance-free service is assured.

ASBESTOS-BONDED Pipe is just one of the many Armco Corrugated Metal Structures designed to meet your specific drainage needs. There is PAVED-INVERT Pipe to combat erosion, PIPE-ARCH for limited headroom, MULTI-PLATE for small bridges or large stream enclosures and culverts. You choose the exact structure you need for economy and service.

Write us for complete data. Armco Drainage & Metal Products, Inc., 2260 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

Export: The Armco International Corporation.

Armco Drainage Structures

ARMCO

Launching an outfall sewer of Armco ASBESTOS-BONDED Pipe across a salt marsh.

No location problems—works underneath streets, parks, etc

No well too deep—motor-pump unit is submerged.

Speed is not limited—motor is close coupled to pump.

Silent operation.

Crooked wells are no problem.

Saves valuable space—no surface motor or pump house.

THE BJ SUBMERSIBLE PUMP HAS IMPORTANT INSTALLATION ADVANTAGES NOT OFFERED BY ANY OTHER PUMP

Safe against vandalism.

Capacities to 20,000 gpm. Heads to 1500 ft.

No water contamination by dirt, oil, or foreign matter.

Can work beneath ice and away from atmospheric changes.

Unaffected by floods.

Get the full story on how BJ Submersibles can answer your needs . . . send the coupon now!

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Precision assembled at factory—installed without adjustments.

Installation is easy.

BJ PUMP DIVISION, DEPT. 50

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CO. or DEPT._____

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"SEMPER PARATUS"

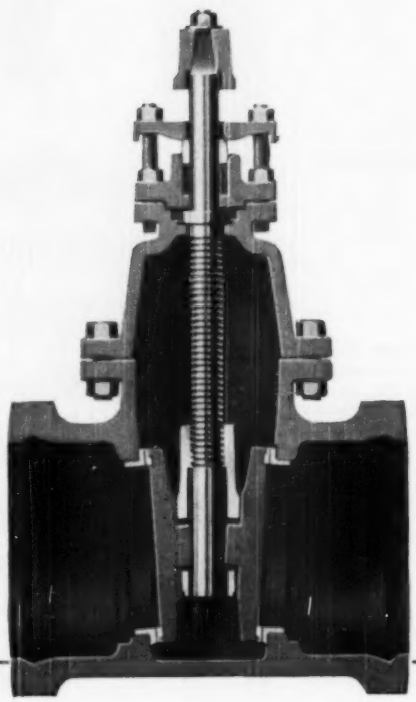
The Coast Guard motto, "Always Ready," tells the most important characteristic of R. D. Wood Gate Valves—they are always ready, even after years of idleness.

R. D. WOOD GATE VALVES can be buried deep underground with full assurance that they will give long years of service with minimum maintenance. The design is of calculated simplicity. The usual small wedges and delicate parts are avoided entirely. There are no pockets to fill up with sediment and scale that might cause jamming, and the flow of water is unobstructed at open position.

For a dependable water system, specify R. D. Wood Gate Valves.

Send for complete information today.

BE EXTRA SAFE . . .
OPERATE ALL VALVES AT LEAST ONCE A YEAR

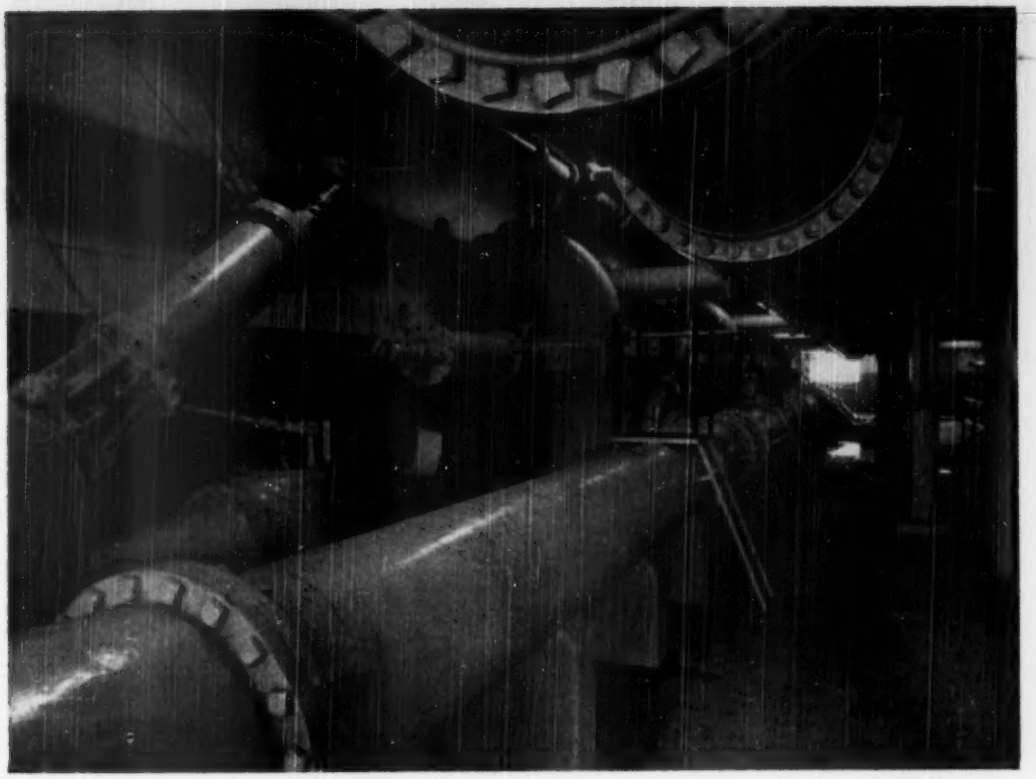


R. D. WOOD COMPANY

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

Manufacturers of Mathews Hydrants and "Sand-Spun" Pipe (centrifugally cast in sand molds)

Only three moving parts—the spreader and two discs. In opening, the discs are lifted into the bonnet entirely clear of the seats. In closing, they are wedged into place without distortion. Seasoned castings. Rigidly inspected. For working pressure up to 175 lbs. Tested to 300 lbs. Conforming to AWWA specifications. Supplied with bell, flanged or mechanical joint pipe connections.



MONO-CAST Pipe For Every Service Condition

"Mono-Cast" is the trade name for Acipco pipe cast centrifugally in sand-lined molds. Uniform metal section, high physical strength, endurance, and freedom from inclusions are salient properties which have established the name "Mono-Cast" as synonymous with "highest quality cast iron pipe." It can be supplied with joints for conveying water, gas, oil, gasoline, sewage, salt brine, ashes—and in fact, just about everything that a pipe line can conceivably convey.

Being cast iron, Mono-Cast Pipe enjoys an enviable reputation. Cast iron pipe has had over three hundred years of service abroad and more than one hundred years of service in the United States. It is satisfactorily serving in locations where especially severe external and internal corrosion conditions exist. Mono-Cast Pipe is designed to give super-service; and its wide acceptance and splendid performance bespeak its excellence and the confidence and esteem in which it is held by those who are using it.

Since the beginning of our Company, forty-five years ago, Acipco has constantly worked hand in hand with engineers, contractors and superintendents in solving piping problems in their respective fields. Refer your next piping job to Acipco, and utilize the extensive manufacturing facilities of the largest individual cast iron pipe foundry in America.

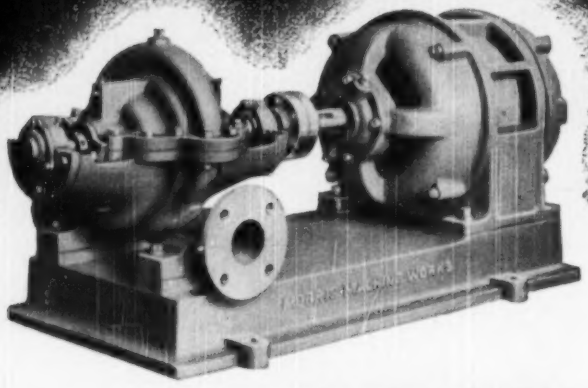
AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama

Dallas Houston El Paso Pittsburgh Kansas City New York City
Chicago Minneapolis Cleveland Los Angeles San Francisco Seattle

FLOATING SEALING RINGS...

Permit Closer Running Clearances...



MORRIS

Horizontally Split Double-Suction WATER PUMP

No other pump has the Floating Sealing Rings . . . yet this exclusive feature alone makes the Morris Double-Suction Water Pump outstanding for efficiency and long service.

During the instant that the pump comes up to speed, but before full pressure is built up, the Morris Floating Sealing Rings adjust themselves to a uniformly close running clearance around the impeller. As soon as full speed is developed the internal hydraulic pressure acting upon the vertical face of the floating ring presses it tightly against the precision machined surface of the casing ring where it is firmly held in place.

This action permits machining the Rings to closer clearances. Leakage is consequently reduced to a minimum, initial efficiency maintained for much longer periods of service. Assures concentricity of ring with impeller, and eliminates binding due to abnormal operating conditions.

Other Long-Service Features of the Morris...

- **Heavy duty, precision-made ball bearings mounted in dust and moisture-proof housings.**
- **Extra-heavy shaft of tough, hard alloy steel . . . exceptionally large in diameter . . . to prevent destructive whipping.**
- **Casing is horizontally split. Upper part easily removed for inspection and servicing without disturbing suction and discharge piping.**

Advanced design of Morris Double-Suction Water Pumps and their several exclusive features assure increased hydraulic and mechanical efficiency . . . reliability . . . and low maintenance cost. Write today for free Bulletin 179.

MORRIS *Centrifugal Pumps*

MORRIS MACHINE WORKS, Baldwinsville, N.Y.

Sales Offices in Principal Cities

WORLD-WIDE SALES AND SERVICE OF HYSTER TRACTOR EQUIPMENT BY MORE THAN 400 "CATERPILLAR" DEALERS

"Caterpillar" dealers around the globe are Hyster tractor equipment sales *and service* stations. They *sell* the right tool for the job. Their factory-trained mechanics *service* the equipment when required. They supply genuine Hyster parts from well equipped stocks.

Hyster has made tractor tools for use with "Caterpillar" track-type tractors for more than twenty years; will continue to design and build quality products for the world's toughest work assignments.

See your "Caterpillar" dealer for information about Hyster Tractor Equipment, or write for literature.

HYSTER® COMPANY

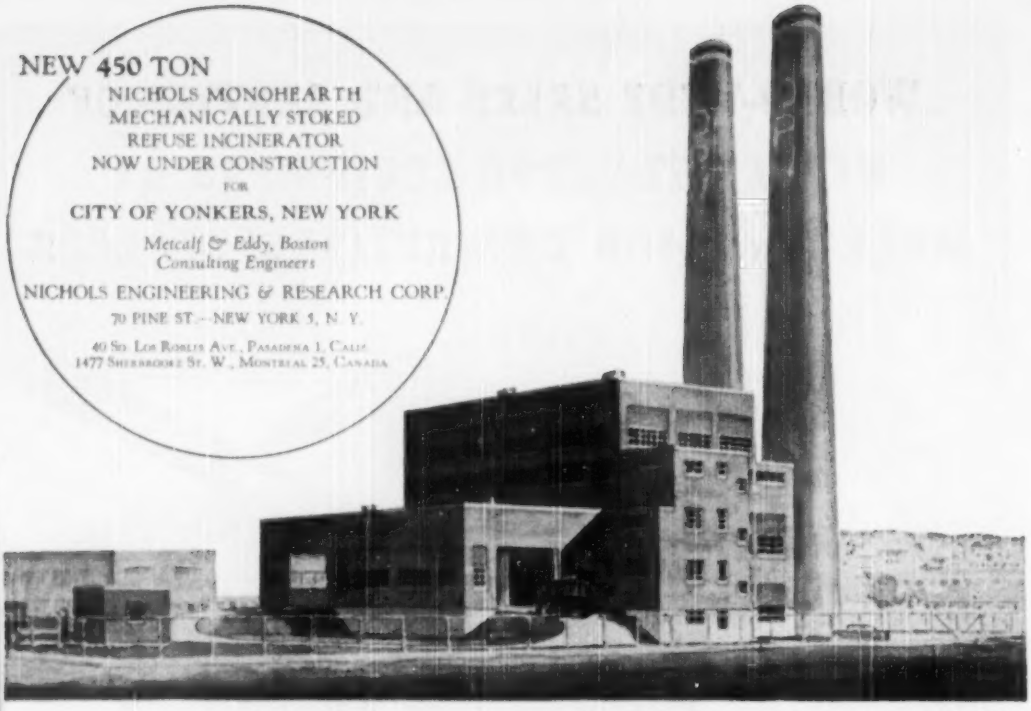
Manufacturer of 29 Tools for "Caterpillar" Track-Type Tractors

2902-61 N. E. CLACKAMAS, PORTLAND 8, OREGON
1802-61 NORTH ADAMS ST., PEORIA 1, ILLINOIS

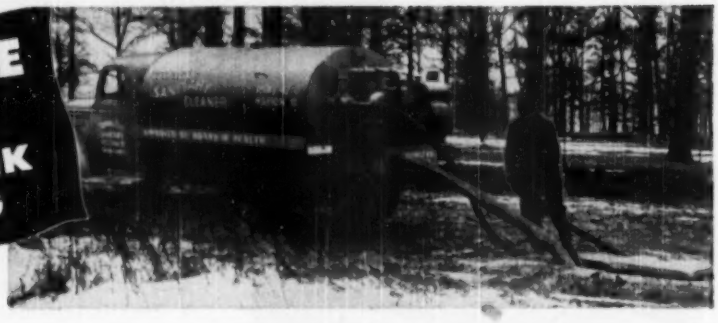
NEW 450 TON
NICHOLS MONOHEARTH
MECHANICALLY STOKED
REFUSE INCINERATOR
NOW UNDER CONSTRUCTION
FOR
CITY OF YONKERS, NEW YORK

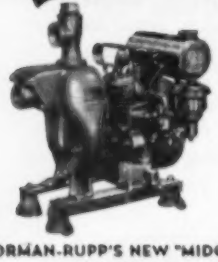
Metcalf & Eddy, Boston
Consulting Engineers

NICHOLS ENGINEERING & RESEARCH CORP.
70 PINE ST.—NEW YORK 5, N. Y.
40 So. Los Robles Ave., Pasadena 1, Calif.
1477 Sherbrooke St. W., Montreal 25, Canada



COMPARE O. S. C. SEPTIC TANK CLEANING





GORMAN-RUPP'S NEW "MIDGET" 1½" PUMP

FASTEST, self-priming, most efficient pump for general use. Weighs but 62 lbs. -- pumps 5500 GPH -- self-primes up to 30 ft. -- non-clogging, sturdy. Gorman-Rupp builds a complete line of pumps from the "HANDY", delivering 8 GPM, to large capacity pumps which deliver as high as 125,000 GPH.

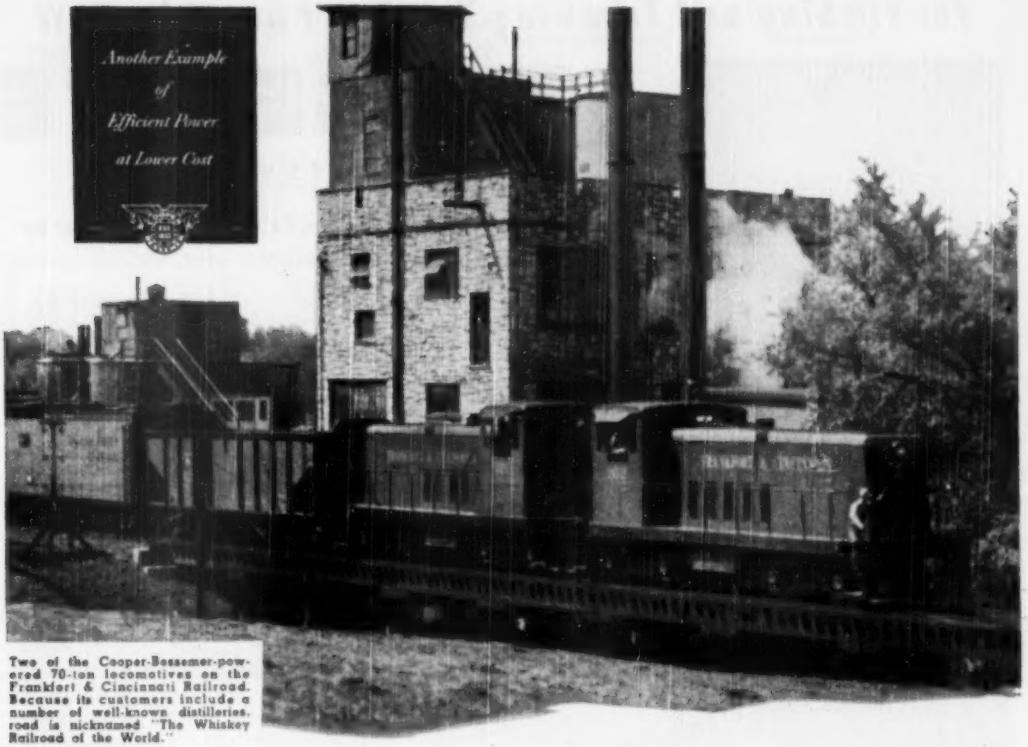
WITH OLD FASHIONED, UNSANITARY METHODS

When a Sanitary Service Operator puts a new Gorman-Rupp Odorless Sanitary Cleaner on the job these are the results:—

1. A disagreeable job becomes pleasant, easy work.
2. Unsanitary methods and unhealthy conditions eliminated. Septic tank cleaning with an O. S. C. unit complies with or exceeds health regulations and requirements. It banishes open tanks, diaphragm hand pumps, shovels and other makeshift equipment.
3. It does each job more thoroughly, in a fraction of the time previously required. For example, 500 gal. tanks are cleaned in 15 minutes, 1000 gal. tanks in 20 minutes.
4. It offers operators profit possibilities far in excess of income with present equipment and methods.
5. An O. S. C. unit has other profitable uses such as transporting water, emergency fire fighting, sprinkling, dewatering, etc.

Show this to Sanitary Service Operators in your community. For complete information write for Bulletin 7-ST-11.

THE GORMAN-RUPP COMPANY
342 N. Bowman St. Mansfield, Ohio



Two of the Cooper-Bessemer-powered 70-ton locomotives on the Frankfort & Cincinnati Railroad. Because its customers include a number of well-known distilleries, road is nicknamed "The Whiskey Railroad of the World."

Maybe the diesels that "Saved a railroad" can help YOU cut costs

WHETHER your plans call for stationary, marine, or locomotive power, the facts in the case of the Frankfort & Cincinnati Railroad might be your cue to big savings.

On this short-line railroad, three Cooper-Bessemer-powered 70-ton diesel-electric locomotives are now doing the work of *seven* steamers. They are giving close to 98% availability! Maintenance cost has dropped from one-half to one-*fifth* of a cent per ton mile. Fuel costs run less than half! Net result is a *full 68% cut in operating costs!* In the words of George L. Fowler, president of the railroad, "If it hadn't been for the money saved by our diesels, our road just couldn't operate."

Here is a typical example of the steady work-loads that can be carried with unmatched economy and dependability by good diesels — the kind built by Cooper-Bessemer for *all* types of heavy-duty service.

The
Cooper-Bessemer
Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas Greggton, Pampa and Odessa, Texas Seattle Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. Calmes Engineering Co., New Orleans, La.

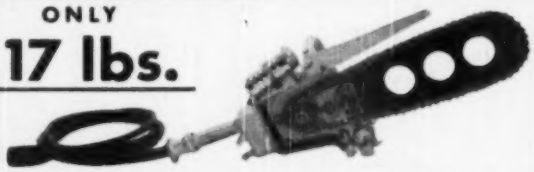
For Limbing and Trimming You Can't Beat the NEW

HOMELITE

FEATHERWEIGHT

One Man Electric Chain Saw

ONLY 17 lbs.



Complete with a 14 inch Blade and Chain

It's the height of efficiency for off-the-ground cutting

First, feel the heft of it . . . only 17 pounds . . . perfect for working up in trees. Yes, by all means, feel the cut of it . . . the *fast, smooth* cut of it.

Built with a narrower kerf and simpler design, this new, featherweight, high-cycle, Homelite Chain Saw requires less power to operate. Therefore it cuts faster. Moreover, binding and chattering are eliminated . . . the life of the chain is greatly increased.

Built for every-day, continuous service, Homelite's newest addition to its chain saw family is the last word in safety, simplicity and economical operation. No brushes or commutator to replace or repair. No clutch to adjust. No servicing except periodic cleaning and lubricating.

Powered by a Homelite Carryable Dual-Purpose Generator

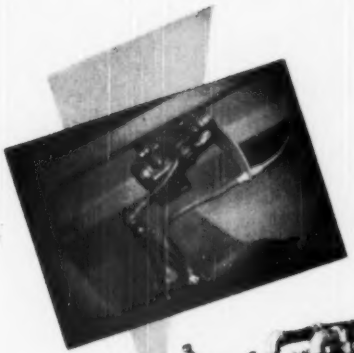
This new 17 pound chain saw, like the other larger Homelite Electric Chain Saws, operates from a Homelite gasoline-engine-driven-Generator that provides plenty of power for not only high-cycle tools, but also standard 110 volt electric tools and floodlights as well.

Write, right now, for complete information.

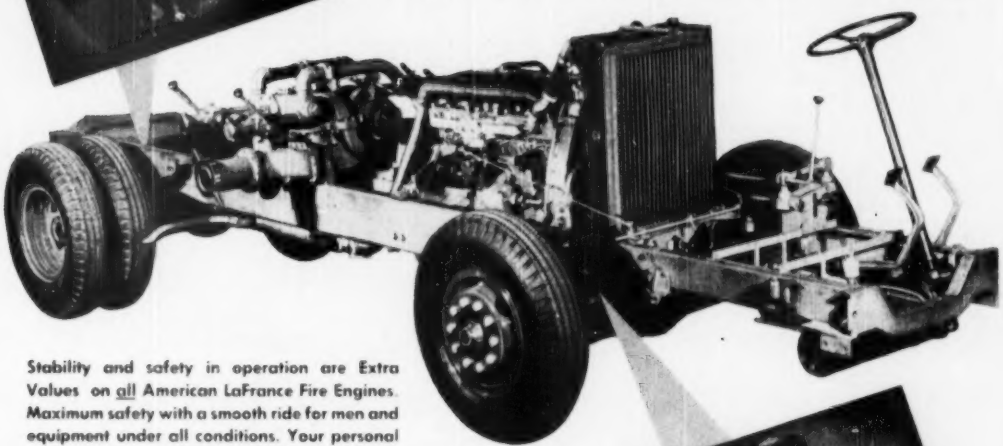
HOMELITE
Corporation
111 RIVERDALE AVENUE
PORT CHESTER, N. Y.

MANUFACTURERS OF HOMELITE CARRYABLE PUMPS • GENERATORS • BLOWERS • CHAIN SAWS

THERE'S *Extra Value* FOR YOU in AMERICAN-LAFRANCE FIRE ENGINES

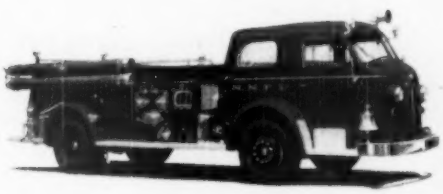


FOR A *Safer, Smoother* RIDE
. . . SHOCK ABSORBERS BOTH FRONT AND REAR
Another Exclusive American LaFrance Feature!



Stability and safety in operation are Extra Values on all American LaFrance Fire Engines. Maximum safety with a smooth ride for men and equipment under all conditions. Your personal car has shock absorbers front and rear and your fire engine is safer, too, when so equipped.

● Fifth in a series of advertisements featuring Extra Values in American LaFrance, first choice of the fire service.

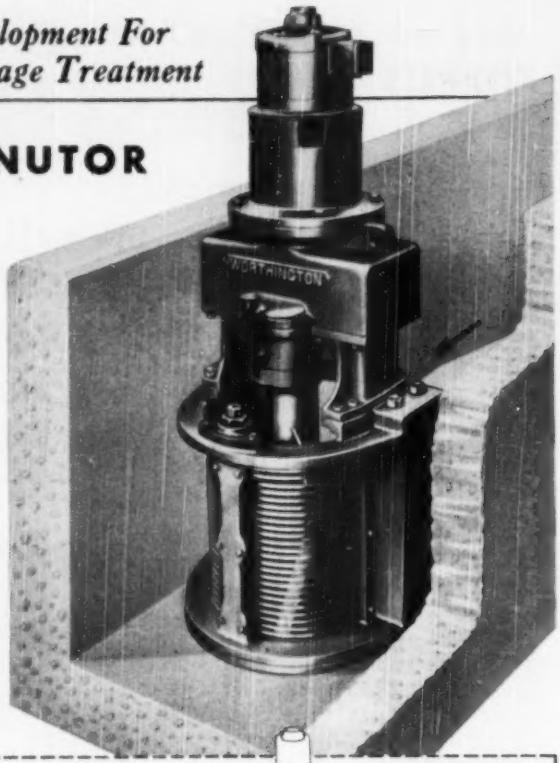


AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

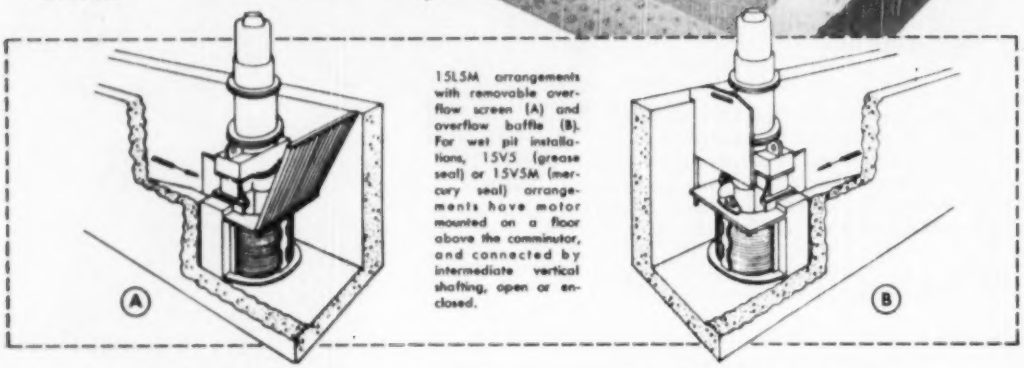
Another Worthington Development For Time- and Labor-Saving Sewage Treatment

THE ONLY COMMINUTOR WITH ALL THESE ADVANTAGES...

- **Easy installation in straight-flow rectangular sewage channels, new or old.**
- **Cutter racks quickly removable for sharpening or replacement, eliminating tedious individual cutter sharpening and adjusting.**
- **Provision for a mercury seal, for automatic protection of internal parts at unusually deep submergences. (Grease seal furnished as standard equipment.)**
- **Provision for overflow screen or baffle by means of a supporting flange.**



The 15C5 Worthington comminutor arrangement for continuous, automatic sewage solids cutting. This unit is designed for a .3 to 2.3 mgd flow range in a channel of 3 feet maximum depth. Standard grease seal supplied is suitable for water depths up to 22 inches.



15L5M arrangements with removable overflow screen (A) and overflow baffle (B). For wet pit installations, 15V5 (grease seal) or 15V5M (mercury seal) arrangements have motor mounted on a floor above the comminutor, and connected by intermediate vertical shafting, open or enclosed.

In many installations infiltration subjects comminutors to peak flows and submergences beyond their maximum capacities. Only Worthington comminutors can be supplied with both a mercury seal and an overflow screen or baffle to handle this problem.

The mercury seal automatically protects the unit's internal parts up to a reasonable submergence. The gear head motor is mounted on a motor base extension pipe above high water level; channel depth may be over 3 feet. The removable overflow screen provides screening at the comminutor's overflow without causing troublesome upstream conditions, and occasional accumulations may be raked down into the unit. Or, an overflow baffle may be used to back the sewage up through the by-pass screen, preventing overflow.

Many Other Advantages

of the Worthington comminutor combine for rapid, continuous, automatic comminution — and for the long, trouble-free service life that proves *there's more worth in Worthington*. Write for bulletin W-2010-B3, and for drawings of arrangements best suited to your own application. Or contact our nearest District Office. *Worthington Pump and Machinery Corporation, Harrison, N. J.*

WORTHINGTON

W-6-1

Mr. Wm. T. Bonsor, *Superintendent Bureau of Street Cleaning*

. . . "continuous service since 1938 in City of San Francisco . . . service has been excellent"

For cleaner, cooler, safer streets, follow the lead of San Francisco. As William T. Bonsor, Superintendent Bureau of Street Cleaning reports: "In 1938, the City of San Francisco purchased an Etnyre Street Flusher of 1250 gallon capacity. It has been *in continuous service* since that time and for a long period was used on *two shifts . . . night and day.* The service has been *excellent.*"

Other city engineers use the Etnyre to remove loose oil from the streets on rainy days, reducing accident hazards. It furnishes water under pressure for cleaning monuments and side walls of tunnels. It can be used for fighting fires, spraying trees, watering shrubbery, pumping out basements, and surface sprinkling.

You, too, can have all of these Etnyre advantages in your city. High pressure, knife-edge streams of water clean streets up to 42 feet wide in *one* trip, even under parked cars. Streets are thoroughly cleaned, bacterial count reduced, pavements kept cool and refreshing, dust and debris washed into the sewer.

One, or a fleet of Etnyres, can be yours on a time payment plan to fit in with your budget. Choose from a complete line of models, in a size and with equipment to fit your requirements. Get the facts on the "Machine of a dozen uses"—write, wire, or phone today for data and prices.

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

E. D. ETNYRE & CO., Oregon, Ill.

DEATH RIDES ON ICE!

THOUSANDS OF SATISFIED USERS . . .
CITIES, COUNTIES, STATES, TRANSIT COS . . .
MANY WITH WHOLE FLEETS BECAUSE . . .

- Spreads without danger to passing traffic
- Economical with material
- Does not limit use of truck
- Hydraulically powered
- Spreads faster
- Driver operated

Write or phone your nearest road equipment distributor—or The Flink Company

Lyons Machinery Co., Little Rock, Ark.
The Four Wheel Drive Pacific Co., San Francisco, California
The Four Wheel Drive Pacific Co., Los Angeles, California
Liberty Trucks & Parts Co., Denver, Colorado
R. W. Blotter Equipment Co., Inc., West Hartford, Connecticut
Tri State Equipment Co., Inc., Wilmington, Delaware
G. C. Foller Co., Chicago, Illinois
Dealers Equipment Co., Peoria, Illinois
E. W. Werner Equipment Company, Mount Vernon, Illinois
Caswell Equipment Co., Davenport, Ia.
Files & O'Keefe Co., Portland, Me.
General Supply & Equipment Co., Inc., Baltimore, Maryland
Dyer Sales and Machinery Co., Cambridge, Massachusetts
Eastern Equipment Sales, Springfield, Massachusetts
Road Machinery & Supplies Co., Duluth, Minnesota
Contractors Supply Company, Kansas City, Missouri
Clarke Trailer Company, St. Louis, Mo.
Montana Feeder and Equipment Co., Helena, Montana
Highway Equipment and Supply Co., Lincoln, Nebraska
North Jersey Equipment Company, Newark, New Jersey
Cradle Equipment Co., Inc., Utica, N. Y.
Municipal Machinery Company, Coram, New York
George W. Whitehead Co. Inc., Buffalo, New York
Rish Equipment Company, Cincinnati, Ohio
Cleveland Contractors Equipment Co., Cleveland, Ohio
Middlekauff, Inc., Toledo, Ohio
Rish Equipment Company, Roanoke & Richmond, Virginia
Rish Equipment Company, Bluefield, Charleston and Clarksburg, W. Va.
Allegheny Equipment Corporation, Pittsburgh, Pennsylvania
J. F. Brittain, Erie, Pennsylvania
Hiway Supply Company, Harrisburg, Pennsylvania
Hodge & Matthews Co., Providence, Rhode Island
Sioux Road Equipment Company, Sioux Falls, South Dakota
Hawkins Equipment Company, Memphis, Tennessee
A. H. Cox & Company, Seattle, Wash.
Wisconsin Oil and Equipment Co., Oshkosh, Wisconsin

The FLINK COMPANY
DEPT. 1-S • STREATOR • ILLINOIS

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

Inquiries and orders solicited

NORTHERN GRAVEL COMPANY
Muscatine, Iowa

P. O. Box No. 307 **Phone: 193**

WORTHINGTON-GAMON

LIQUID METERS

All Sizes **All Types**

Worthington-Gamon Meter Co.
Subsidiary
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey

Model HM
4-WHEEL DRIVE
PAYLOADER
SPEED—
POWER—
TRACTION—
Versatility

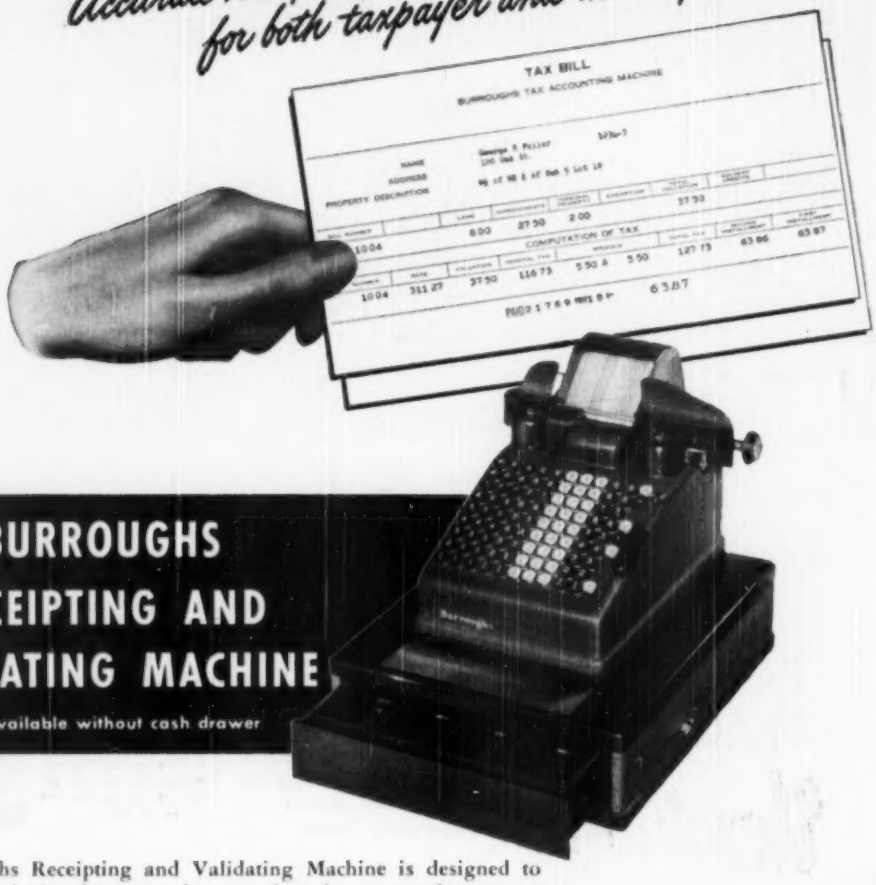
The Model HM Payloader is a complete Hough-built unit . . . a powerful 1½ cu. yd. tractor shovel with large pneumatic tires, 4-wheel drive and four speeds in each direction. It has the power, traction and flotation to work on all kinds of ground . . . to dig, load, carry, grade, level and spread . . . converts in a few minutes to a bulldozer, a crane, or a "V" snowplow. Not a fair weather worker, but a year 'round tool.

HM versatility is backed by many other outstanding Payloader advantages . . . power-booster steering, 76 h.p. gasoline or diesel engine, double-acting hydraulic boom and bucket control, unequalled operator comfort and visibility. The complete HM Payloader story is yours for the asking. See your Hough Distributor, or write The Frank G. Hough Co., 710 Sunnyside Avenue, Libertyville, Illinois.

SEND for HM catalog, or literature on other Payloaders — the 1¼ yd. Model HL, the ¾ yd. HF, the ½ yd. HE, the 12 cu. ft. HA.

HOUGH
PAYLOADER
Manufactured by THE FRANK G. HOUGH CO.

Accurate receipting... complete protection for both taxpayer and municipality!



BURROUGHS RECEIPTING AND VALIDATING MACHINE

also available without cash drawer

The Burroughs Receipting and Validating Machine is designed to receipt bills and other documents for taxes, fines, fees, etc., and to account for all payments so that the taxpayer, the cashier and the municipality are all completely protected.

Repeat receipting is mechanically enforced. Thus, the taxpayer's bill with the payment receipted on it is an exact duplicate of the record retained by the municipality. This additional record is made by depressing a single key.

The machine marks the bill "paid" and identifies it with a transaction number, date, amount and cashier's symbol.

As a by-product of the bill receipting, the information is recorded on a locked-in audit tape. This serves as a daily cash report, since amounts are automatically added to provide a total of the day's receipts.

BURROUGHS ADDING MACHINE COMPANY, DETROIT 32, MICHIGAN

Protects the Municipality

Enforces correct accounting for payments on same day received.

Protects the Cashier

Identifying symbol limits his responsibility to transactions handled.

Protects the Taxpayer

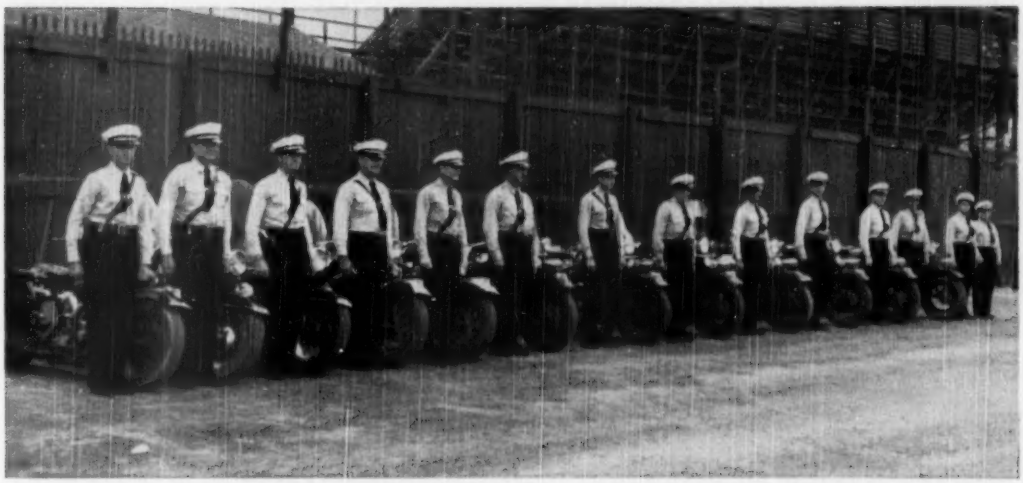
Assures him full credit for amount paid.

WHEREVER THERE'S BUSINESS THERE'S **Burroughs**

TOPS IN TRAFFIC CONTROL!

AUSTIN, TEXAS is again among the leaders in the National Safety Council Poll

(Harley-Davidsons used exclusively)



Record-setting traffic squadron of the Austin, Texas Police Dept. Left to right: Officers Scott, Fann, Marsh, Wagner, Pilgram, Voight, Clermon, White, Barns, Cates, Gann, Joslin; Sgt. Biggerstaff, Capt. Blackmann.

FOR many months, Austin has been in first or second position in the National Safety Council's poll of cities of 100,000 to 200,000. This remarkable record has been made in face of increasingly heavy traffic, mounting numbers of over-age cars and trucks and a sharp rise in population and motor vehicle registrations. Our congratulations go to Chief R. D. "Boss" Thorp and his efficient police department. We are proud, also, of the role played by Harley-Davidsons in making Austin a safer city. These motorcycles have been used exclusively by Austin's traffic squadron for a period of more than 18 years.

In countless other cities, Harley-Davidsons are similarly demonstrating their exceptional value in accident prevention and traffic control. Ask your dealer to call on you with complete information about the latest model Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars, or write

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

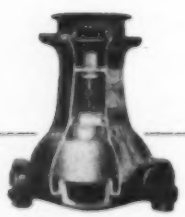
MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Metering Alone is NOT Enough...

Antigo, Wis. proves the value of PROPER MAINTENANCE	Before MAINTENANCE 1938	After MAINTENANCE 1949
Services metered	92%	99.67%
Number of Services....	1693	2375
% of Pumping ..... registered thru meters	38.5%	89.3%
Annual Consumption... (Gallons per Service)	219,110	109,000

FROM the above, you can realize that it is just as important to MAINTAIN your meters properly as it is to put them in. Antigo proved this, over a ten-year period. The figures speak for themselves.

The cost of pumping, treating, storage, etc., of water saved by water meters properly maintained, plus savings in sewage disposal, is substantially more than the cost of proper meter maintenance.



New improved parts in old Trident Meter

220

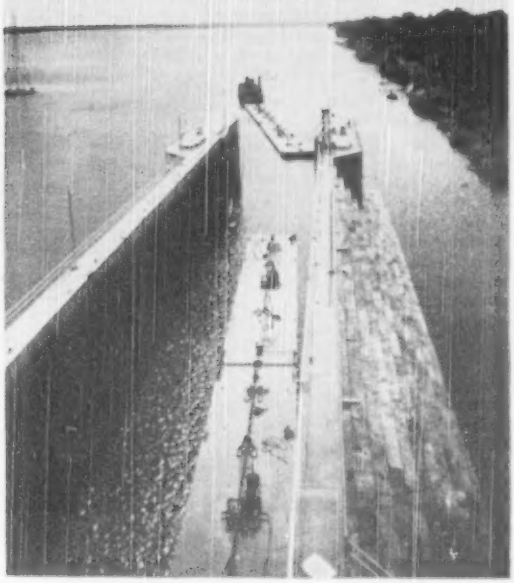
NEPTUNE METER COMPANY • 50 West 50th Street • NEW YORK 20, N.Y.
Branch Offices in Chicago, San Francisco, Los Angeles, Portland, Ore., Denver, Dallas, Kansas City, Louisville, Atlanta, Boston.
NEPTUNE METERS, LTD., Long Branch, Ont., Canada

NOVEMBER 1950 The American City

Local Riverfront Development

Tennessee communities discover value of commercial navigation

Decatur's comprehensive plan



By HOWARD K. MENHINICK
Director of Regional Studies
Tennessee Valley Authority
Knoxville, Tenn.

A gasoline tow upbound at Wheeler Lock. Over 500,000 tons of petroleum products are barged into the Tennessee Valley annually; about half the total is brought the full length of the river to Knoxville.

COMMERCIAL navigation on the Tennessee River is a factor of increasing consequence in the economic development of the Tennessee Valley. Many of the problems and opportunities of commercial navigation are of concern to its cities in particular. The 9-foot navigation channel of the Tennessee River, extending 630 miles from Paducah, Ky. (where the Tennessee River connects with the great inland waterway system of the Ohio and Mississippi Rivers), to Knoxville, Tenn., was essentially completed in 1945. Because the cities located on the Tennessee River have, therefore, only recently had the advantages of deep-water navigation, it is reasonably easy to identify the new business and industrial activities that have been stimulated and made feasible by the savings in transportation costs it has made possible, and to observe the steps that cities have taken to promote the full utilization of newly created deep-water frontage by industries which benefit from water transportation.

A distinctive feature of the Tennessee River development is the fact that TVA, which was given responsibility for the constructing of the 9-foot channel, has a continuing program to help the businessmen of the Valley utilize the river effectively and thus capture the potential savings in transportation costs. This grows out of TVA's responsibility for developing all the resources of the river valley. In short, on the Tennessee River there is a navigation *program*, not merely a *project*.

In the eight-year period ending in 1933 (the date of the establishment of TVA) Tennessee River traffic averaged about 36,000,000 ton miles annually. The average length of haul was only

about 20 miles. Eighty-five per cent of the traffic consisted of sand and gravel dredged from the river and moved short distances; the balance was primarily forest products, whose movement on the river was steadily decreasing throughout the decade. During the last calendar year, 1949, the river carried more than 470,000,000 ton miles of traffic—more than 14 times the 1933 movement. The average distance hauled was about 8 times as great as in 1933. Even more important than the increases in the volume of traffic and the length of haul is the increase in the transportation of high-value commodities — automobiles, petroleum, grain, fertilizer, coal, and steel. Transportation savings to shippers in 1949 totaled about $6,000,000.

Public-Use Terminals

During the war, TVA built four general-cargo public-use terminals in the cities of Decatur, Guntersville, Chattanooga, and Knoxville to meet national defense needs. Illustrative of the wartime use of these terminals is the handling of 20,000 military vehicles which were brought into the Valley by barge and distributed through the Guntersville public-use terminal overland to the Atlantic Coast. In peacetime these terminals provide a physical land-to-water link which enables shippers to utilize cheaper water transportation in situations in which the amount of traffic would be too limited or too irregular to warrant the construction of private facilities. The terminals also permit potential large shippers to try out water transportation before investing funds in constructing their own facilities. TVA is operating the terminals during a developmental period under a policy which contemplates ultimate transfer of the terminals to a suitable public or private agency, under conditions which will assure equal access to all shippers.

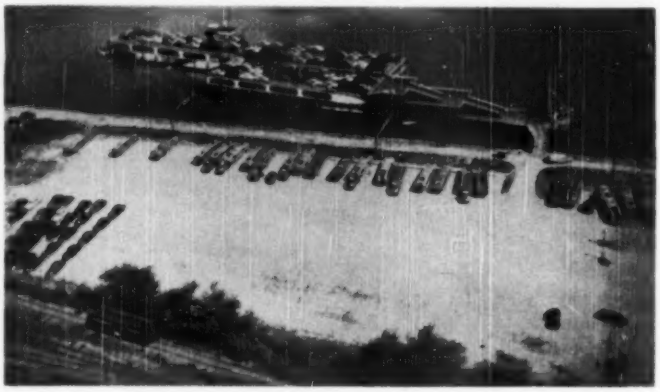
In addition to the four public-use terminals, there are now in use about 25 waterfront terminals built by private industries on the Tennessee River since TVA undertook its multi-purpose riverfront-development program in 1933. In addition, many other industries continue to use previously existing terminals to handle their water traffic. Still other industries which are not actually using water transportation have found that a location on navigable water is a strong factor in assuring favorable rail rates.

Contribution to the Region's Development

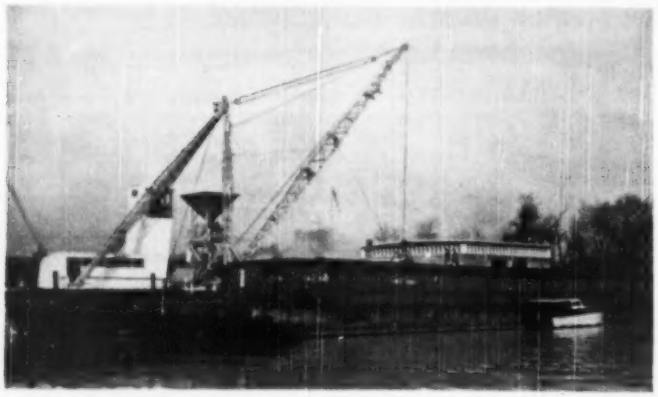
Even more important than direct savings to shippers is the contribution which river transportation is making to the development of the economy of the Tennessee Valley. This is well illustrated at Decatur, Ala., where there are now eight important industrial establishments which have river-terminal facilities. These include two gasoline distributors handling petroleum products brought in by barge from the Gulf Coast and Midwest refineries and carried inland by truck and rail. Another is the yards of the Ingalls Shipbuilding Corporation, which during World War II built more than 135 sea-going freighters, derrick boats, and coastal tugs. Since the war the shipyard has completed and delivered diesel-powered steel barges for the use of the French Government on the Rhine River and various other types of vessels for export and for use on our own inland waterways. Still another is the Alabama Flour Mills, constructed in Decatur in 1940 by individuals operating a group of family-owned flour mills in Nebraska. This development was made possible by a transportation saving of about $3.50 per ton on shipments of grain by water from the Midwest. The establishment of the Alabama Flour Mills produced a chain reaction of economic developments of great significance to Decatur and the region.

Many of the agricultural developments corollary to the flour mill have been initially financed by the businessmen of Decatur who recognize that their city will prosper as the surrounding farmlands become increasingly productive.

This demonstration of the gains that



Automobiles, shown here unloading at the general-cargo public-use terminal at Guntersville, Ala., are carried inland by truck to over 200 destinations.



A barge loaded with grain at the Knoxville public-use terminal. One such terminal in a port serves many shippers and receivers—large or small.

can accrue from the use of deep-water navigation has stimulated the City of Decatur to plan for the development of its waterfront as an important community asset. The City Planning Commission of Decatur, with the technical assistance of the Alabama State Planning Commission and the Tennessee Valley Authority, has prepared a comprehensive plan for the physical development of the entire deep-water frontage of the city, including such purposes as water supply, sewage disposal, recreation, and industry. The waterfront plan was developed as an integral part of a comprehensive city plan. A cardinal feature of that plan is the preservation of deep-water frontage, existing or to be developed by dredging and filling, for the use of industries which are dependent upon or can benefit from deep-water navigation.

Studies Conducted by Alabama, Tennessee, and Kentucky

After the waterfront developement plan was adopted by the Decatur City Planning Commission and the City Council, the Planning Commission, at the request of the Council, started an exploration of possible methods of acquiring and developing the waterfront. Was this a development which should be undertaken by the Department of State Docks, following the precedent worked out for Mobile? Was the municipality the appropriate agency and, if so, should there be a separate commission or should the function be lodged in a new or an existing city department? Did the city possess adequate legal powers to carry out a program of waterfront development?

The assistance of the Alabama State Planning Commission and the Bureau of Public Administration of the University of Alabama was enlisted for a study of these and related problems. Cities in other states were interested in these same problems, so the Bureaus of Public Administration of the Universities of Tennessee and Kentucky initiated companion studies for the cities of their states. The three studies were conducted concurrently. *Cities and Riverfront Lands** summarizes the findings of the three studies.

The summary report concludes that "assuming proper planning and handling . . . an integrated, efficient, economical use of limited waterfront areas is more likely if the public owns and allocates the space than if growth is left to haphazard development controlled only by zoning and similar ordinances."

The report points out that publicly owned land available for industrial waterfront development in cities may be administered in a number of ways—for all of which there are precedents. One alternative is a separate unit of government, such as a Port Authority. Another is a special commission, which has the advantage of being less completely isolated from the municipal government. A third is to make the undertaking a part of this integrated structure of city government. The author concludes that of these three alternatives, the best solution for the cities of the Tennessee Valley will usually be to place the responsibility for administration at the municipal level and handle the function within the established governmental departments.

The report calls attention to the fact that, although most states which contain navigable waters have given their cities power to acquire and manage water terminals, in most states additional legislative authority would be required, or at least desirable, for the development and management of industrial waterfront properties. Territorial limits pose a special problem which may present an additional need for new legislation.

While considerable initial outlays of money for land and development may be required, these investments should be recoverable in their entirety through sales or rentals of industrial waterfront property and indirectly from the improved economic and, therefore, tax base of the community. The element of financial risk can be greatly minimized if there is a known and committed demand for the developed sites before the enterprise is embarked upon.

There is included in the appendix of the report two suggested legislative bills which would provide all the legislative powers required for effective industrial-waterfront development, management, and financing.

From the studies and experience at Decatur it is clear that riverfront development is an important aspect of total municipal development—both physically, economically, and administratively. It is significant that Decatur is recognizing these aspects at an early and crucial stage.

* *Cities and Riverfront Lands.* By York Willbern. Bureau of Public Administration, University of Alabama, 1947.

New Castle's Economic Revival

HOW the Town of New Castle, in the western section of Pennsylvania, lifted itself up by its own bootstraps after it was called a "ghost town" is told in a case history published recently by the Pennsylvania Department of Commerce.

Rebirth of a City

The story of the town's economic revival is used in one of a series of advertisements by the state bureau to stimulate commercial activities. The series is called "Adventures in Helping Yourself."

It explains how New Castle was once the tin-plate capital of the world. At one period, its population trebled in a few years.

"But it was a one-industry town," according to the state agency, "and its great tin-plate works grew old and obsolete and were abandoned in favor of more efficient operations."

In 1938, a writer in *Harpers Magazine* called New Castle a "ghost town."

At that time, continues the state report, half the population of New Castle was out of work, but the ghost-town story made the people mad.

They got together [the case history reveals], decided they would work themselves out of the crisis, organized the Greater New Castle Association and set out to rebuild their community. Existing industries have always received first consideration and their growth has been most notable.

It has been a long, hard struggle, with many ups and downs, but today New Castle has dozens of small plants in various industries, it has an industrial payroll of $30,000,000, a spendable income of $70,000,000, and more than $58,500,000 of retail sales.

The Reverend Ralph E. Hovencamp, one of New Castle's distinguished community leaders, reports that the community spirit and solidarity shown in the town reinforces its determination to progress. He states that there is a willingness to get together, talk things over, and iron them out without plunging in and finding later that half the community will not go along with decisions that are made by a few.

The state report concludes:

New Castle's troubles aren't all over. It still has small labor surpluses, but it has an aggressive population with a burning determination.

New Castle at one time, in a period of 48 hours, raised $35,000, later refunded, to buy a plant from a wrecking crew. And the future looks secure to the people of the one-time ghost town.

The same sort of industrial development program can be carried out in your town if you need it. The Pennsylvania Department of Commerce will be glad to help you get it started.

Water Supply

The Hard Way

Sweetwater, Texas, battles

geology

weather

a river authority

wealthy ranchers

big oil companies

to win a water supply

big enough to let the city grow

By H. S. THORGRIMSEN
City Manager
Sweetwater, Texas

THERE'S no problem more baffling in the Southwest than the problem of water supply. It baffles the rest of the nation, but in the Southwest meteorological and geographical conditions intensify the problem beyond all comparison. Add to this the facts that the population has boomed since 1940, the industrialization of the area has run away with it, the national defense depends on it as a training area, the population of half the nation moves through it as tourists every year, and one can see why such axioms have developed as "A city out here will grow to the limits of its water supply," or "It takes an acre-foot of water to support one person permanently."

Sweetwater is one of the few cities that have solved the problem of their supply.

Water tables have dropped alarmingly here, where all streams are intermittent except the big ones, whose flow fluctuates seasonally from raging torrents to trickles.

The answer is the impounding surface waters flowing toward the Red, the Brazos, the Colorado, the Pecos, the Rio Grande, or the others.

Sweetwater had to have water supply four or five times as great as its old one. The only available supply was on the watershed of the Colorado, 30 miles south, whereas Sweetwater is on the Brazos watershed. The job would take 2,500,000 dollars, whereas Sweetwater could stretch its credit to borrow only $1,500,000.

The Scurry County (Snyder) oil-field development is only 35 miles northwest of here. The Gulf Oil Corporation has a refinery here. We knew they needed six times as much water as they were getting.

We got the extra million from them as an advance for the purchase of water. It took 14 months of negotiation with Sidney Swensrud's men—Bonner Barnes of Pittsburgh, general manager of refineries, and William Slater, since retired, then vice-president in charge of refineries. Also in on the dealings was Eldon Young, general counsel, of Houston. The arrangements are all incorporated in a 30-year agreement, bound in leather.

We applied to the State Board of Water Engineers for a permit to impound the waters. Immediately we encountered the opposition of as rock-ribbed a group of ranchers as you ever saw, all wealthy, all close-mouthed. We also ran into the opposition of the Upper Colorado River Authority, a state agency with permissive powers over the waters of the Colorado in Coke and Tom Green Counties.

Our successful negotiations with them took us through the County Courts of two counties, Runnels and Coke. And our dealings with the U.C.R.A. resulted in another formal contract.

Oil Discovered Near Dam Site

At this point oil was discovered within almost shouting distance of our proposed dam-site on the ranch of the old-timer whose opposition had been the firmest of all—Conda Wylie. His was the land on which the dam would sit; from him we'd have to acquire 1,300 acres by condemnation or purchase. The Humble Oil Company, world-wide, Houston; the Warren Oil Company, minor, Houston, and the Barnsdall Oil Company (recently merged with Sunray) of Tulsa (Barnsdall's president and top stockholder was Floyd Odlum), owned the leases on the lands we'd have to have, some 4,000 acres in all.

With the oil in big production only 3½ miles away, these ranchers were positive there was oil on the land that would be inundated.

We have had to fight that issue out with them, a negotiation that's been a six-sided thing for more than 14 months: ranchers, oil companies, Sweetwater, ranchers' attorneys, oil companies' attorneys, Sweetwater's attorneys.

We're over the hump on the problem. The solution lies in an agreement to the effect that *if* oil is found in the basin in which our water will lie, Sweetwater will build mounds high enough to bring the well-tops above the water, and causeways from shore out to those mounds.

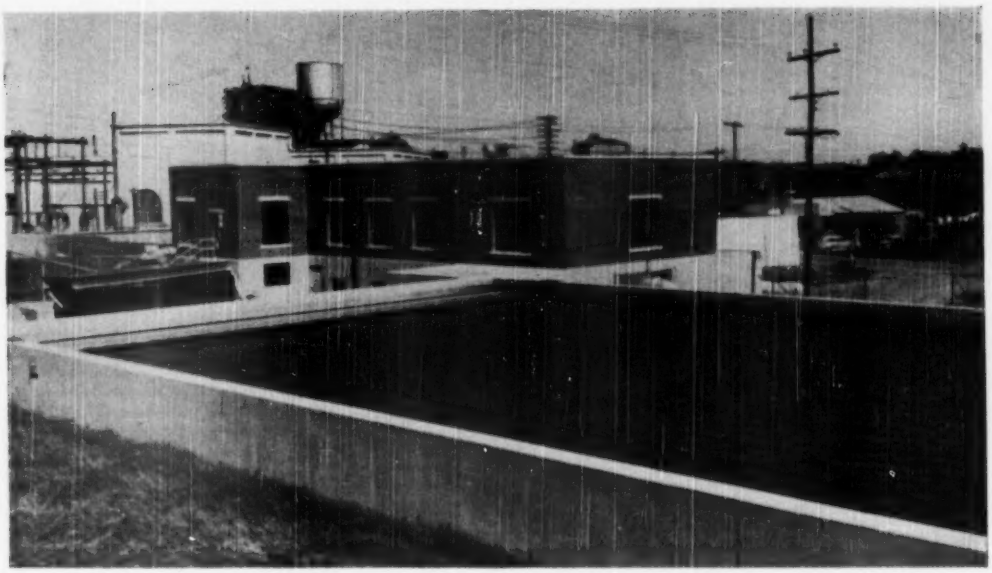
The negotiations have taken us to the very top brass in those oil companies, the members of the boards of Humble in Houston; Rex Baker; Morgan Davis—fabulous names in the oil business—the Barnsdall exploration managers, Manley and his attorneys, in Tulsa; Warren himself of Houston.

Our contracts for the building of the dam and clearing of the land have now been let and construction has started. The dam and basin should be ready to impound water by the summer of 1951.

Dramatis personae include:

Our Side

1. Dr. R. O. Peters, 6' 4", 290 lbs., a surgeon, former Rice football player, general practitioner in this area.
2. William S. Chennault, brother of the Flying Tiger, vigorous civic leader, manager of the local Western Union.
3. J. C. Pace, Jr., meat-packer, supermarket owner, businessman. Former Flight Officer delivering planes to Alaska via Whitehorse. (These three are former mayors.)
4. Lester Reeves, present Mayor, butane-propane distributor.
5. Dalton Hill, former City Commissioner, furniture dealer.
6. Willis Davis, former Commissioner, International Harvester dealer, rancher, sportsman.
7. Bryan Buck, former Commissioner, lumber dealer.
8. M. C. (Red) Alston, Commissioner, lumber dealer.
9. Myself, our City Engineer, our Water Superintendent, our Comptroller.
10. Our attorneys: H. R. Bondies, City Attorney; Ney Sheridan, Jr., former football great, University of Texas under Chevigny, nationally famed; Alvin J. Wirtz, Austin, former Under Secretary of the Interior under Harold Ickes.
11. A consulting geologist, David Dono-



Sweetwater's new treatment plant is so designed that even the filter wash water is saved and used.

ghue, Fort Worth, a man to whom Arabia and Venezuela are as familiar as the streets of Fort Worth.

12. Our consulting engineers, Freese and Nichols, Fort Worth, one of the most prominent in the Southwest.
13. The Gulf Oil Corp., Pittsburgh, Pa.
14. The finance houses: William Smallwood of First Southwest Co., Dallas; Richard Nongard, Chicago; others.

The Other Side

On the other side were various downstream ranchers, their attorneys, the Upper Colorado River Authority, and a group of well-known oil companies.

The lake that will be created will contain ultimately 50,000 acre-feet of water. One acre-foot contains 326,700 gallons. The total would support 50,000 persons easily. Fifty thousand acre-feet would be the equivalent of 50,000 acres 1 foot deep, or 25,000 acres 2 feet deep, or 12,500 acres 4 feet deep, etc. Our water will cover 1,100 acres.

To keep our team in scoring position, our fullbacks, consulting engineers Freese and Nichols, set us in good position with a nice safety play. The one feature that could be started without county-wide opposition was the filter plant. Our old plant had been carrying too big a load for several summers. So we plugged through the line to make a 2-mgd gain in capacity by extending it. The extensions consist of two 1-mgd filter units designed on the basis of 2 gallons per square foot per minute; one sedimentation basin for 2 mgd with a 6-hour detention period; a circular mixing basin providing 20 minutes of slow mixing; a wash-water settling basin for reclaiming the filter wash-water; additional high-service pumping facilities, and other small features.

Probably the most interesting aspect of the treatment plant is the way it makes every drop of water work overtime. Most filter plants waste the wash-water to the sewer, but our plant doesn't. Instead, the water goes to a basin 27 feet in diameter, with a 10-foot side depth and a conical bottom. The water settles here and the sludge is drawn off by gravity.

The filters use Leopold vitrified salt-glazed suplex filter underdrains, and are operated through hydraulic valves from an operating table provided with table-mounted rate-and-loss gauges. Omega Universal chemical feeders apply the alum and lime for the treatment process.

With this new plant plus the big new reservoir, Sweetwater's water-supply-troubles will be over until the newcomers to the city and the new demands made by a prosperous industry start again pushing the plant capacity.

Local Development Corporations Pay Off

MISSOURI cities have hit the jackpot with their industrial-development corporations, according to the American Society of Planning Officials.

Citing a recent preliminary survey by the state's Division of Resources and Development, the Society noted that the industrial foundations have increased the purchasing power of their communities an average of $6,756 for every $215 originally invested. Currently, some 49 communities and 33 counties in the state have industrial foundations, and 80% of them have secured at least one new industry.

The industrial-development corporations were set up by citizen groups to give financial aid to manufacturing enterprises in hope of bringing new payrolls to the community. Generally, the aid they provide is of three types: buying, developing, and selling industrial sites; buying or building plants for lease or sale; and providing money for loans. The capitalization of the Missouri corporations ranges from $15,000 to $140,000, with the average at $51,700.

Manufacturing firms secured by the Missouri industrial-development corporation reported, as of June 1, a total employment of 5,052 and a total local investment by the foundation of $1,085,400. This is an average local investment per employee of $215.

On the basis of recent census figures showing that the average industrial worker's annual earnings were $2,252, the development corporations have created a job opportunity of this amount for every $215 of local money invested. The state's development agency estimates that the average payroll dollar in the state creates three times its value in purchasing power of the community—a conservative estimate. Therefore, each $215 invested has increased the purchasing power of the community by $6,756.

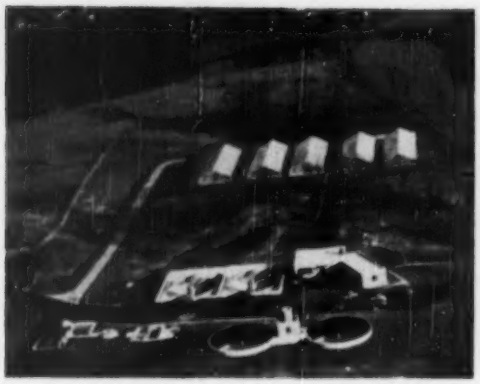


PHOTO COURTESY OF CHAUSSE

The new primary-treatment plant for the industrial city of Taunton lies near a bend of the Taunton River.

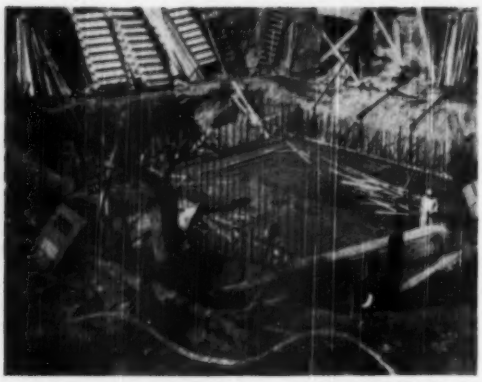


PHOTO COURTESY OF CALVEY

Pumping-station construction was aided considerably by use of well points that dewatered surrounding ground.

Taunton Solves Its Sewerage Problems

New primary-treatment plant eliminates pollution of Taunton River, fits into the state-wide pollution-abatement program

By FRANK L. HEANEY
Fay, Spofford & Thorndike
Boston, Mass.

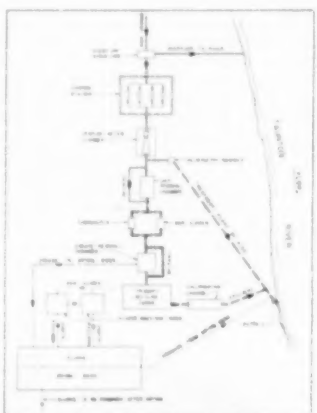
THE COMPLETION of the new sewage-treatment plant for the City of Taunton marks a milestone in the pollution-control program of Massachusetts. Taunton, an industrial city since early Colonial times, with a population of about 38,000, had been discharging from 3 to 10 mg of untreated sewage daily into the Taunton River. This stream is the largest in the southeastern section of Massachusetts. At the point where the sewage was being discharged, the river is tidal, and navigable for a distance of some 6 miles, after which it enters a more or less broad channel to the head of a bay bordering on both Massachusetts and Rhode Island.

Recreational use of the river by yachtsmen, fishermen, and bathers declined and almost disappeared. Large quantities of untreated wastes were dumped directly into the river by a distillery and a tannery, thus aggravating conditions considerably. Floating sludge banks, strong odors, and other conditions attending this pollution began to cause numerous complaints. Tests of the river showed it to be devoid of oxygen; and the seasonal runs of fish, mostly alewives, were greatly affected. At times, the banks of the stream were littered with dead fish.

Conditions had deteriorated to such an extent that the Massachusetts Department of Public Health, through court action, compelled the two industries mentioned above to construct, at their own cost, industrial waste-treatment works. At a later date and in a similar manner, the state compelled the City of Taunton to erect a sewage-treatment plant for its municipal sewage.

Plant Requirements

The proposed plant had to receive sewage through a system that used, in part, separate sanitary sewers. The remainder were combined sewers. Dry-weather flow is about 3.6 mgd. Wet-weather flow is about 10 mgd. Sewage characteristics of dry-weather flow are a BOD of about 250 ppm and suspended solids of about 260 ppm.



The outfall sewer from the City of Taunton passed down the center of a street in the industrial district, and, at a point opposite the municipal lighting plant, turned at right angles and discharged at the bank of the river.

Construction of the new sewage-disposal works started with the building of a connection to the existing 48-inch circular brick outfall sewer where it turned off the street. A new 39-inch concrete-pipe sewer was constructed in the street to the exterior limit of the industrial area. At this point, a new main sewage-pumping station was constructed. This station will also receive, at a later date, sewage from the section of the city lying on the opposite side of the river. Sewage is pumped from this station up to the sewage-treatment plant about 1,800 feet away.

For Emergency Overflow

The 48-inch outfall sewer mentioned above was retained to serve as an emergency overflow from the sewer in the street to the river. An underground structure to provide for emergency overflow was constructed near the junction of the new and old sewers. The control of the overflow is provided by means of an adjustable side weir which permits the sewage, when the pumping station is out of order or when the

storm flows exceed the capacity of the pumping station, to flow out through the old outfall sewer to the Taunton River.

The pumping station was constructed alongside the river, and it was necessary that the excavation be carried to an elevation some 25 feet below the surface of the river. As the soil on this site consisted of a fine-grained sand, the contractor used two levels of well points, furnished by the Moretrench Corporation, to dewater the excavation, and thus obviated the need for tight sheeting. This operation was very successful. The pumping station houses four Aurora non-clog sewage pumps. Two are rated at 3,500 gpm; one at 3,000 gpm, and one, a 3-speed pump, was rated at 700 to 2,100 gpm. All are close-coupled, vertical centrifugals.

A by-pass is provided on the force main from the pumping station just before the main enters the sewage-treatment plant, so that, if desired, the sewage may be pumped directly into the outfall sewer from the treatment plant without passing through the plant. Provisions have been made for injecting chlorine into this by-pass when it is in operation.

Treatment Details

The type of treatment may be readily seen from the flow diagram. The process consists of grit removal, grinding or screening, grease removal (which involves some aeration), primary settling, chlorination of the effluent before discharging into the Taunton River, sludge digestion, sludge drying, and the removal of the dried sludge.

The treatment plant was designed so that it could be expanded, when and if it becomes necessary, to include secondary treatment. Space and provisions for piping connections have been provided accordingly. The site need not be enlarged.

The grit-removal structure consists of a concrete chamber with a continuous scraping Dorr Detritor, 18 feet in diameter. Grinding or screening is accomplished in a second concrete structure with a 25-A Chicago Pump Company comminutor in one channel and a bar screen in the by-pass channel.

To provide grease removal, another concrete chamber, with inside dimensions of 20 by 20 feet, and a side-water depth of 10 feet, was erected and supplied with a grease-flotation unit of a mechanical-aerator type made by American Well Works. Skimming is accomplished by rotating rubber-faced blades against side weirs. The unit has a detention time of 12 minutes at 3.5 mgd.

For primary settling, the plant has two concrete tanks, each with inside dimensions of 55 feet by 55 feet, with side-water depth of 9 feet, 3 inches, bottom slopes of 1 inch to 1 foot, weir troughs on all four sides, rotating sludge scrapers, and surface skimmers. Detention time is two hours and 25 minutes at 3.5 mgd.

Chlorination is provided in a concrete channel 160 feet long, 8 feet wide, and 5 feet deep below the outlet weir. Detention time is 20 minutes at 3.5 mgd. Two Builders-Providence Chlorinizers, with a 400-pound-per-day capacity, apply the chlorine in the channel during normal operation, and to the by-pass force main if the plant is not in use. Chlorine-charging scales can handle two 1-ton chlorine cylinders. The plant has an outside storage rack for ton cylinders, and a monorail with spur-geared chain hoists for handling.

Primary sludge is pumped by three Chicago Pump Company "Scru-peller" 7½-hp, 150-gpm pumps to the sludge-digestion tanks. Builders-Providence venturi meters placed on sludge lines record the amount pumped in the control room of the operating building.

Two Digesters

The sludge is digested in two reinforced-concrete circular tanks with 50-foot diameters, 26-foot side-water depths, bottom slopes of 2½ inches in 1 foot. It is equipped with Pacific Flush Tank floating covers. Sludge gas is collected and used in a combination oil-gas burner to heat the digestion tanks and the operating building. Automatic controls are provided for shutting off the oil burner and for turning on the gas burner when a sufficient pressure of sludge gas is accumulated. The same controls provide for the automatic transfer back to oil when the gas pressure is insufficient. A PFT waste-gas burner was provided to burn excess sludge gas.

To remove the grease and digested sludge, the plant uses a Marlow plunger-type pump with a capacity range of 6 gpm to 75 gpm. This can pump grease from the grease-removal unit to the sludge-digestion tanks, or from the grease-removal unit to a sludge-drying bed, or it can pump digested sludge from the sludge-digestion tanks to any of the five sludge-drying beds.

Glass-Covered Sludge Beds

The five sludge-drying beds, each 125 feet by 40 feet wide, are enclosed in Lord and Burnham greenhouses and equipped with monorails and a sludge-conveying system. The city anticipates that farmers will haul the sludge away if it is supplied to them free. This has been the experience of other cities in the area.

The operating building houses the laboratory, office, and electrical-control room; the chlorine equipment; the boiler that heats the digesters as well as the operating building, and the digested-sludge pump and piping for transfer of sludge or grease. The pipe gallery, constructed over the chlorination channel, houses the primary sludge pumps and the piping and metering equipment for transferring the sludge. The garage provides heated storage for three motor vehicles and facilities for washing them. Control of operation for all major electrically driven units at the treatment plant is centralized at the electrical-control desk in the operating building.

Present structures have been designed and located in such a manner that additional units to accomplish secondary treatment may be added at a later date.

Advertisements Tell the Public

In order that the citizens of Taunton might know why the plant was built, how much it cost, and, more important,

(*Continued on page* 167)

PHOTO COURTESY OF CALVEY

These men made the new civic improvement possible: E. J. Dahill, Chairman, Board of Sewer Commissioners; F. L. Smith, Superintendent; R. W. Butler, Resident Engineer; E. W. Kearns, Sewer Commissioner; Gil Wyner, Contractor; F. L. Heaney, of Fay, Spofford & Thorndike; H. M. Solomus, of Gil Wyner Company; J. F. Parker, Mayor, and L. W. Moore, Construction Superintendent.

Budgetary Control

Through
Modernized Mechanical Methods

By JOHN L. WILLIAMS, Jr.
City Auditor
Acting Director of Finance
City of Phoenix, Ariz.

While the author watches approvingly, Miss Alice Mosier, Assistant City Auditor, operates the new Burroughs budgetary accounting machine. Miss Mosier became an employee of the City Water Department in June 1921. In 1927 she went to the City Auditor's Office as a stenographer and bookkeeper. She has held the civil-service position of Assistant City Auditor since 1933.

IN JANUARY 1950, an entirely new accounting system was set up for the City of Phoenix. As a part of the general reorganization of the administrative functions of the city, five departments were combined into the Department of Finance, and the position of Director of Finance was created.

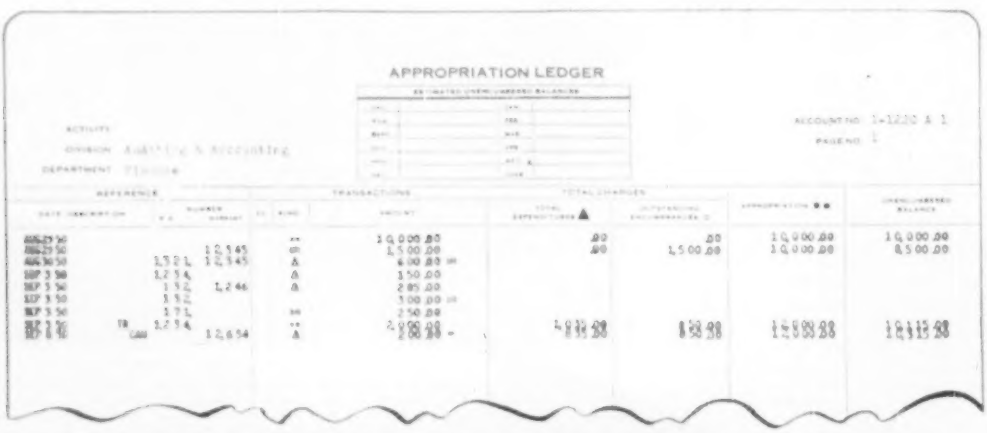
Mechanization Began with Independent Audit in 1929

In 1929, the first real independent audit was conducted with the idea of establishing controls and setting up a system of accounting. At that time the City purchased a Burroughs bookkeeping machine with a Moon-Hopkins keyboard, combining typewriter and adding machine. From 1929 to 1950 the auditing and accounting functions drifted through hectic years of political strife. In 1933 the City Auditor was changed five times.

The codification of accounts was changed to conform to the standard pattern devised by the National Committee on Municipal Accounting of the Municipal Finance Officers Association. From the former expenditure classification, with appropriation accounts arranged alphabetically, the arrangement of accounts has been changed to a grouping by functions and activities, with allied or related functions grouped together. This facilitates use by management, and is valuable for comparison with the reports of other cities and with the financial statistics of cities as prepared by the U. S. Bureau of the Census.

In line with the revision of the accounting practices, the form of presentation of the annual budget was also revised. The new budget not only sets out a statement of estimated revenues and recommended appropriations expressed in dollars, but also outlines a suggested program of municipal services for the year and the means of financing this program. Instead of being printed after its adoption by the City Council, as in past years, the budget in its entirety was duplicated and made available to the members of the Council and others for study in advance of the required public hearings.

All of these changes in accounting



Machine-calculated appropriation ledger aids close administrative control by Phoenix City Council.

and budget procedures, together with the tremendous growth of the city in the last 10 years, created a serious problem of effective administrative control. To get the full benefit from the new accounting and budgetary practices, it became evident that more efficient equipment was needed. Several manufacturers' representatives were given the opportunity to demonstrate their accounting machines. After careful consideration, the new budgetary accounting machine of the Burroughs Adding Machine Company, Detroit, Mich., was chosen as the one which best fitted the needs of the City of Phoenix.

Difficulties were experienced in shipment of the machine, and it was impossible to begin operating it until August 1, 1950, which put us a full month behind in our budget work. In spite of all this, the regular monthly report to the City Council was only two days later than usual.

Posting Economies

In the past, each individual purchase order had to be listed in our records of encumbrances. This was done to facilitate cancellation of encumbrances at the time of liquidation. Under our new method of encumbrance, an adding-machine tape is made of each group (by funds) of purchase orders, and only the total entered in the records of encumbrances. When the posting is made to the individual budget account, a comparison of the grand total of the proofsheet must equal the adding-machine tape. This operation is a real time-saver.

Some of the automatic features of the new Burroughs machine are: totals to date and balance; proof totals; line-lock proof of balances; printing of dates, and fully automatic carriage. When two or more postings of an item occur on any account, the carriage of the machine is automatically returned to the original posting by a position motor bar designed for this purpose. Our other machine had to make a full carriage operation on each and every posting. Each transaction is designated by symbols in the columns on the budget sheet.

After the encumbrances (purchase orders) have been posted, they are placed in numerical order, and at the time of liquidation the purchase orders are liquidated and removed from the encumbrances files. At the end of each month, the purchase orders are sorted by account number according to the budget. Adding-machine tapes are taken of each group of purchase orders by account number. These amounts are then reconciled with the budget accounts. Reconciliation of these accounts, which usually required the work of two people for approximately one and one-half days, now can be done by one person in half a day.

Our old machine (also a Burroughs) now takes off the budget summary at the end of each month. The complete budget is summarized in report form for the Council and City Manager.

Plans are being developed to streamline the payroll procedure and use the old machinery in this operation.

Company Gives Park to Bridgeville, Pa.

AMERICAN CYANAMID COMPANY'S Bridgeville (Pa.) plant recently presented an eight-acre community park to this heavily industrialized town under a token lease of $1 per year. The dedication ceremonies culminated a co-operative effort on the part of the community, people, and company to fill a long-standing need in the town.

Bridgeville is located in the rolling hills outside Pittsburgh. Among the 5,000 inhabitants is the normal number of children, and, like all kids, they wanted a place to play. Older folks, too, wanted a place to have picnics. But the town didn't have any such facilities.

About a year ago, one of the Cyanamid employees asked if children could play ball on an unused part of the company land. Permission was readily given. The management had a field cleared and a backstop built. While looking over the area one day, the plant management visualized that still more of the land could be put into use as a community park. It was an ideal location, not far from Main Street, and the green hills behind made a picturesque backdrop.

When approached, the local Chamber of Commerce enthusiastically accepted the idea. Cyanamid management approved and plans got under way.

The company cleared the land, leveled it, planted grass, and enclosed the area with a rustic fence. A 50-foot flagpole was erected with a plaque in its cement base commemorating the occasion. Picnic tables, fireplaces, disposal cans, and rest-room facilities were added.

The Chamber of Commerce will administer the park, and plans to erect slides and swings for the children, put in more picnic facilities, and improve the road leading to the area. With the adjoining ball field, the Bridgeville-Cyanamid Park is expected to become a focal point of community activities.

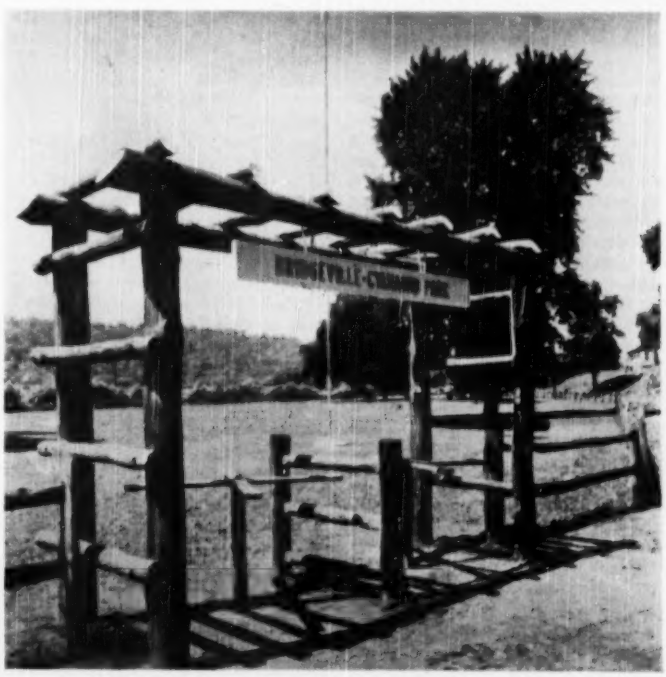


PHOTO COURTESY OF AMERICAN CYANAMID COMPANY

Entrance to the Bridgeville Park.

British Refuse Handling Practices

Odsal Stadium, in Bradford, England, which accommodates 80,000 people. The land on which the stadium was built was formed out of a useless valley by refuse dumped according to controlled-landfill procedures.

WE USE four main methods of disposal:

Controlled tipping
Separation-incineration
Direct incineration
Pulverization

The four methods do not include crude tipping, or the indiscriminate deposition of raw refuse on land. This has never been regarded by us as a method, but the negation of method. In 1922 the Ministry of Health, with a view to reducing this unsanitary practice, issued the document known as "The Ministry of Health — Suggested Tipping Precautions." This document clearly sets out the simple principles of "controlled tipping," which is a low-cost sanitary method much used in Great Britain and in other countries.

Twenty-five years ago it was claimed that direct incineration was the only satisfactory and completely sanitary method, but I have known many such plants which were definitely unsanitary. Many schemes were evolved for producing electricity from refuse for lighting, tramway, and other purposes, but many of these schemes did not fulfill expectations, or justify the usually heavy expenditure. As regards the production of steam to generating stations, or other users, we have found that electrical engineers are not keen about combined refuse-disposal and generation plants; they hold that the difficulties associated with joint plants outweigh the advantages. Generally, they have good grounds for their attitude.

An important factor militating against steam production is the progressive decline in the calorific value of domestic refuse, which now averages about 4,000 Btu's per pound and contains a very heavy inert mineral content.

The disposal of dry refuse on land by the process of fermentation, brought about by the thermogenic organisms present in the putrescible content, is comparatively new. The method was first tested about 1912 and was used by a few local authorities during the first world war, when some remarkable results were recorded at Bradford. Between the world wars successful results were reported from hundreds of towns and cities.

Very briefly, the underlying principles of the method require dry refuse to be deposited in shallow layers, not more than 6 feet in thickness, and covered within 24 hours with soil or other suitable non-combustible material which will form an effective seal. The whole of the refuse can be put into the tip, but it must be packed tightly; there must be no cavities. The front, or "tipping face," must be kept narrow.

Tips Formed Into Fingers

Tips are sometimes formed in strips of "fingers"; the number and width of these do not matter provided that each "finger" is separately sealed as the tipping proceeds. These "fingers," of course, become soil-lined, cells in which the biological changes proceed independently. Incidentally, fire does not occur in the cells when the control is good, but there have been occasions when unauthorized persons have uncovered the refuse after sealing has been completed, and set fire to it. When this happens, cell formation localizes the outbreak and makes suppression simple, whereas fire in an uncontrolled refuse tip is exceedingly difficult to fight.

"Mound" tips, or tips carried well above adjoining ground level, are not permissible under the Ministry of Health Suggested Precautions. It is usual to select low-lying land, deep depressions, disused sand pits, or quarries and bring up the level to that of the surrounding land. The rate and progress of settlement depends upon the packing and the character of the refuse; uniformity of settlement depends upon uniformity of packing, a point of some importance when playing fields or recreation grounds are being made. The rate of settlement varies from 1 in 10 to 1 in 6. Land from which underground water is drawn for domestic use is not used for controlled tipping, and it is not permissible to tip raw refuse into water.

Higher Temperature and More Rapid Fermentation Rate

Temperature is the natural result of the biological changes which take place in the putrescible or organic content, and the rate of change is in inverse ratio to the air supply into the packed refuse. This being the case, the more nearly perfect the cover, the more rapid the rate of fermentation and the higher the temperature, which, of course, means the more rapid disappearance of the organic matter. We aim at obtaining 140° F. for 10 to 30 days at a depth of 3 feet, but I have known 180° to be recorded at this depth.

After a few weeks the figure begins to fall, and continues to fall until atmosphere is reached when the refuse is "dead." At this stage, the old refuse, or the finer grades of it, can, if required, be removed and used to cover fresh deposits of new refuse, so that, in this sense, dry refuse can be said to contain within itself the elements essential to its own effective disposal, given the necessary conditions. Usually, a period of from 12 months to 2 years elapses before English refuse becomes "dead," but this is of small importance since the refuse is, as a rule,

By J. C. DAWES
C.B.E., M. I. Mech. E.
Ministry of Health
London

Part II—
Refuse Disposal

Some sanitary-landfill work being done at Bradford, England. Note the trim fill lines, the stakes for guide posts, and the close proximity of residences.

permanently deposited or can remain on site until "dead."

There is one point, however, which can not be too strongly emphasized: there must be the strictest attention to, and compliance with, every detail in the schedule of precautions and the management must be good. If this is loose, careless, or inadequate, the results indicated cannot be achieved. Controlled tipping is not as simple as it might seem.

When suitable land is not available for controlled tipping, a mechanical process might have to be considered. In these circumstances the separation-incineration method is the first to receive technical examination. Over 90% of the mechanical plants built in England and Scotland during the past 20 years have been of this type, which, briefly, provides for the preliminary separation of the fine mineral dust, minus 5/16 inch or 3/8 inch, by means of rotary screens, and the subsequent incineration of the dustless surplus, or tailings, after the extraction of any materials required by industry.

Dust Troublesome in Refuse

We have seen in previous discussions that the dust content (minus 5/16 inch) may be as high as 40% by weight in the winter. This can be very troublesome if left in the refuse. In the first place, it often carries a heavy moisture content which, from an incineration standpoint, is a disadvantage; secondly, it sometimes has a calorific value as low as 3,000 Btu's per pound, and over 50% of it is inert matter! Its effect in a furnace is to keep down the temperature and reduce the value of the clinker.

I have referred several times to the putrescible content; it is ubiquitous. I have also pointed out that the present tendency with us is for this content to increase, and for the fuel content to decrease. For this reason it is necessary, when the putrescible content has to be incinerated, to use the highest possible temperature obtainable in order to oxidize the gases as completely as possible, and avoid one of the worst faults a disposal plant can have, namely, the emission of burning odors from the chimney.

Extracted dust is separately disposed of in several ways. Sometimes it is sold for use in heavy land where it has a useful physical effect; in many places it is used for leveling recreation grounds, and in others it is tipped without nuisance. There is, of course, some biological action when this material is tipped on land in thick layers; usually it is found desirable not to disturb it, except when required for agricultural or other special purposes, for several months, or until it is "dead" when it can be used on controlled tips to cover new refuse if and when required. Substantial quantities of this dust are mixed with the clay, in the manufacture of a well-known and very hard building brick known as the London stock brick, but it is useless in the manufacture of ordinary building bricks. It might be useful to observe that a claim has recently been made, and supported by actual data, to the effect that, after prolonged exposure, it has produced good grass and other crops without soil addition.

Plant More Complicated

The mechanical plant required for this process is, of course, more extensive and complicated than that of direct incineration, because all the operations from the unloading of the refuse to the feeding of the furnaces are mechanized; the furnace accommodation is practically halved as compared with direct incineration, and the temperatures are much higher. Generally speaking, a really good separation plant, intensively managed, is cheaper in operation than a direct-incineration plant.

Under this method the whole of the refuse, as collected, minus metals and glass, is hand-fed into top-feed pulverizers, or crushers.

With us it is not the process, but the disposal of the product, which gives rise to difficulties. Where wood is used for domestic heating and cooking, as for instance in the South of France or Italy, or districts with comparable climates, the wood ash improves the final product, and a regular demand and an economic price is sometimes possible, but in England where the refuse has a high mineral content the product is difficult to sell, even at a low price. This, however, is not the case at present in Holland, where a big pulverizing plant, situated at a considerable distance from The Hague, where the refuse is produced, is now turning out about 100,000 tons of pulverized refuse per annum against a demand for a much greater quantity. I am informed that users are of the opinion that pulverized refuse is something more than a low-grade fertilizer; it is a humus former and stimulates microbal life in the soil, and by giving it a better structure and a greater water-holding capacity it prevents soil erosion. Incidentally, Dutch domestic refuse is like English refuse.

Twenty years ago considerable tonnages of domestic refuse were carried out to sea in hopper barges designed for the work, but only one city uses this method now, and that for only part of its collection. Our experience of this method was the usual one; much

of the refuse carried out to sea on one tide was returned on the next, but never to the district of the forwarding authority. I have known refuse to be washed up on the beaches of a health resort fifty miles distant from the town from which it was sent to sea!

A committee of experts was appointed some years ago by the British Agricultural Research Council to study the question of mixing sewage sludge and town refuse to make a worth-while compost, and a series of field-scale experiments was planned and carried through. At the close of the investigation the Ministry of Agriculture issued a Technical Communication entitled "The Agricultural Use of Sewage Sludge and Sludge Composts," and under the heading, "Composts from Sludge and Town Refuse," it was stated that "experiments have shown that composting sewage sludge and pulverized town refuse can produce a good manure." This is my personal view, too.

I cannot give the tonnage of dry refuse now used in Great Britain for "composting" with sewage sludge, but it is quite small. I think it would be to the advantage of all concerned if the figure were increased, since much land exists which might benefit by the adequate use of a compost of this nature.

In the South of France, and in part of Italy, a substantial tonnage of refuse is subjected to rapid fermentation in closed concrete cells to produce a good quality compost. On the basis of this experience, a big plant was erected by private enterprise just before the war to compost a part of London refuse. As explained under the heading of "Pulverization," there is a wide difference between the potential fertilizer value of a refuse produced where wood is the common domestic fuel and one produced in a country where coal is used almost exclusively, and the average refuse contains a mineral content of about 60% by weight. The plant referred to closed; the end product was unsaleable at an economic price.

Finally, a paper on British experience of refuse collection and disposal would not be complete without a reference to salvage. I have already referred to the recovery of derelict or low-lying land and to the separate collection by local authorities of kitchen waste for the manufacture of a sterile animal-feeding stuff. I might add that 2,750,000 tons of waste paper have been recovered since 1940 and sold to the paperboard industry, and that well over 4,000,000 tons of ferrous and non-ferrous metals have been disposed to the industry for manufacture during the same period. This is not a complete list of the materials recovered from refuse and utilized in agriculture and industry, but I hope it is comprehensive enough clearly to indicate our experience of disposing of refuse to produce income as a set-off against expenditure. On our side of the Atlantic we had very many surprises during the fateful war years, and to me one of the greatest and most pleasing was to learn that a number of plants for separation-incineration of refuse were operating on a profit basis!!!

Recreation Can Help to Make Democracy Secure

EMPHASIZING the importance of happiness and sound emotional adjustment as a factor in the preservation of democracy, Walter L. Stone, Professor of Sociology of Hanover College, in his recent pamphlet, *The Field of Recreation*,* lists 13 essentials in planning for the leisure time of a democratic people:

1. To understand the meaning of leisure in the modern culture of the Western world.
2. To spread abroad this understanding so that all men possess it and respond to it.
3. To study and understand our local communities; their needs, their resources, their possibilities.
4. To make use of all existing facilities; schools, churches, libraries, museums, play areas, settlements, private agencies.
5. To bring about community action, through community planning and organization of all resources.
6. To furnish trained professional leadership and to develop high-grade volunteer leadership.
7. To provide adequate budgets.
8. To gain, develop and apply an educational philosophy made effective through skill.
9. To cooperate with all agencies—public, private, and commercial.
10. To extend parks and playgrounds and recreation areas and their use.
11. To remember that all ages, all classes, all groups, have recreational needs, especially the older; to adopt programs now that build continuing interests, skill, and appreciations.
12. To remember that a program costs in money, interest, effort, and emotional outlay.
13. To insure a leadership that is ingratiating, ingenious, and inspiring. The leaders in the field of recreation in America today stand as the first line of defense for democracy.

Democracy will be secure [says Dr. Stone] if its people are happy and well adjusted. Recreation makes a definite contribution toward sound emotional adjustment. In giving people opportunities to develop hobbies, to participate in social activities such as games, dramatics, and music, recreation leaders contribute balancing factors which make for the normality and the culture of American life. . . .

Such a program will have to have some type of coordination machinery—a Recreation Council or a Community Welfare Council with a Recreation Section, which will (a) continuously study the recreation needs of the whole community; (b) define the problems and organize committees to meet them; (c) integrate the work of all existing agencies and programs, public and private, seeking to avoid both overlapping and overlooking; and (d) serve as the over-all planning and coordinating body in the field of recreation.

* The William Frederick Press, 313 West 35th Street, New York, N. Y. 42 pp. $1.

More Cities Grant Graduated Vacation Time

AN INCREASING number of local-governmental units are adopting "escalator" vacation policies, which give more vacation time to employees who work longer, the Civil Service Assembly reports.

Most recent cities to adopt the graduated vacation leaves are Pontiac, Mich., and Berkeley, Calif. In both cities, employees who have 10 or more years of continued service are now allowed three weeks' vacation.

At least 100 other U. S. cities have some form of graduated vacation plan, the 1950 Municipal Year Book shows. Similar plans are in effect in the Canadian cities of Toronto and Montreal, the State of Virginia, and the Province of British Columbia.

Under Berkeley's vacation policy, employees are allowed to take their vacation one week at a time, or defer one week to the next calendar year with the approval of the department head. In Pontiac, employees who complete five years of service also earn a three-week vacation for their fifth year, but for that year alone.

What plowing schedule works best? **What controls ice most effectively?**

What equipment is needed?

This nation-wide operating summary gives the answers.

Small cities often use equipment to perform duties the year round. Here is an Athey Mobiloader at work in Aurora, Colo., clearing snow. In summer, the Street Department uses it for various duties.

By **WILLIAM S. FOSTER**
Engineering Editor
The American City

OF THE various operations assigned to the public-works official, none is more unpredictable than snow-removal. Fundamentally, it is an emergency service, since a city cannot function if its streets are impassable to motor traffic.

The responsibility of the snow-removal crews is great. Taken the country over, about half the vehicular traffic travels on the streets of our nation's communities. Of this tremendous volume of traffic, 80% uses around 8% of the street system. It behooves the snow-removal crews, therefore, to keep this 8% open at all times so that the life-blood of their city will not be shut off. They should be ready and equipped to clear this vital section of the city and to remove the snow completely from the streets. For the remaining 92% of the streets, the snow-removal crews do as the people in their cities ask. If they want every street open, and there is increasing evidence that they do, then a plowing schedule must be established.

In this work, speed is vital, and organization makes that speed possible. New York City's set-up shows how snow removal can be handled in a great city.[1] (References on page 167.)

New York City first orders out the rotary snow-brooms for bridges and express highways. Next it sends out sand and salt spreaders early in the storm. Usually they remain out for the duration of the storm. The salt is not used on bridges, bridge approaches, concrete pavement, or on streets within one block of any thoroughfare with underground electric cables for street cars. When accumulations of snow become so great that they cannot be removed by the salt, plow equipment goes out.

To dispose of the snow, sewers are often used. Cross bars are always placed across the manhole. Hose streams help flush the snow down the sewer. Too-rapid feeding chokes the sewers. The snow must be free of sticks.

In above-freezing temperature, the snow is scattered in the street for the traffic to melt by driving over it.

Chicago's snow-removal program,[2] laid out by Lloyd Johnston, Commissioner of Streets and Electricity, is precise as a military order. It works under a three-color operating schedule in this manner:

White

Alert, set by the Supervisor of Street Cleaning, approved by the Superintendent of Sanitation. When set, the Station Supervisors call Ward Superintendents. These in turn call all employees.

Yellow

Assemble, set by the Supervisor of Street Cleaning, relayed to the Station Supervisor, the Chief Dispatcher, the Head Motor Truck Driver, the Superintendent of Equipment, and the Office Manager. The Head Motor Truck Driver assembles personnel. The Superintendent of Equipment notifies the wrecking-truck driver, the service mechanic, and parking-location personnel to assemble.

Green

Full Operation. The Chief Dispatcher checks each station to see if equipment is operating, accepts complaints of motor failure, and sends mechanics or replacements. The Head Driver checks to see whether all drivers are assigned. The Office Manager compiles progress reports. The Station Supervisor starts trucks on the routes.

Cincinnati also has a meticulously prepared program of ice and snow

Snow costs go down when the equipment can go out while the snow is easy to manipulate. At Reno, Nev., a Caterpillar grader cleans 5 inches of snow.

removal. Cincinnati terms it "slippery-street control," since snow is not a serious problem in this latitude. However, the city does experience frequent freezing and thawing cycles.

The Assistant Superintendent of the Highway Maintenance Division or his replacement is responsible. He alone is designated by the Superintendent to activate the slippery-street organization. Each supervisor in turn is responsible to the Assistant Superintendent for this emergency activity.

Each supervisor is responsible for insuring that an adequate supply of salt-sand mixture, salt-cinder mixture, and plain salt is available for immediate use in every slippery-street loading yard.

The emergency-truck service at the Highway Garage operates on a 24-hour basis from mid-November to the middle of March, under the supervision of the Supervisor of Equipment.

Close Contact With Weather Bureau

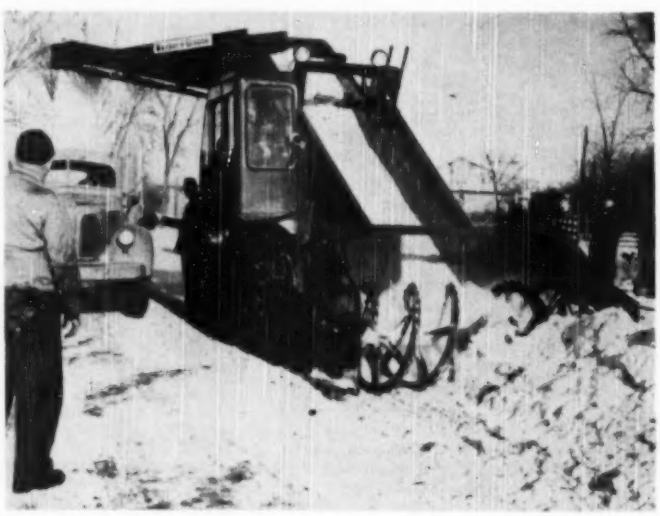
During the entire slippery-street season, from November 15 to March 15 inclusive, the Dispatcher's Office keeps contact with the local office of the Weather Bureau, calling every two hours whenever a possibility of danger threatens, and each hour when a serious condition develops. The Dispatcher's Office obtains the official afternoon weather report from the Weather Bureau at 4 p.m. daily and transmits this report by phone to the Superintendent, Assistant Superintendent, and each Supervisor. The receptionist at the City Hall obtains the weather report at 10 a.m. daily, phoning this information to the Dispatcher and the Assistant Superintendent's Office and distributing typewritten copies of the report to the Superintendent, Assistant Superintendent, and all Supervisors through the mail system. Each Tuesday and Friday the receptionist obtains the five-day weather report from the Weather Bureau and distributes typewritten copies of this report to the Superintendent, Assistant Superintendent, and all Supervisors. Reports of weather conditions in Southwest Ohio, Southeast Indiana, and Northern Kentucky will be obtained by the Dispatcher's Office daily from the respective state police radio stations.

The night street-cleaning foreman who is the senior Highway Maintenance employee on duty from 10 p.m. to 6 a.m. is constantly on the alert for the development of a slippery-street period. Whenever the temperature is below 35°F. at 10 p.m., the foreman phones the Assistant Superintendent for instructions and holds all mechanized street-cleaning equipment at the Highway Garage until clearance is received from the Assistant Superintendent. When the weather is threatening during the night, the foreman contacts the Dispatcher every hour at about 15 minutes past the hour. Whenever the Dispatcher advises the foreman of a threatening condition, or whenever the foreman observes that the streets are growing slippery, he will order all of his operators and street-cleaning equipment to report back to the Highway Garage and will himself report to the Dispatcher.

Every watchman or other employee on duty in each highway-maintenance work-yard makes observations of the weather at his respective yard every hour on the hour, and calls the Dispatcher at the Highway Garage whenever it appears that the streets are going to be slippery.

When Danger Threatens, A Four-Phase Alert

At that time, the Assistant Superintendent personally contacts the Weather Bureau and the City Station for further information and may request radio contacts with the Ohio, Indiana, and Kentucky State Highway Patrols. From the available information, the Assistant Superintendent alerts the sections personally or through the Dis-



A rubber-tired Barber-Greene conveyor loader "falls to" a windrow of snow. This loader has a swivel chute and is able to load 20 cubic yards per minute.

patcher's Office according to the following plan:

A—Stand-by Alert: When it appears that there is a possibility of ice on the streets, Supervisors shall be alerted and they in turn will alert General Foreman or other supervisory personnel.

B—Preparatory Alert: When conditions reported and appraised indicate a more definite trend toward slippery streets, Supervisors will be alerted and they in turn will alert the General Foreman or other supervisory personnel who will contact key employees. Under this alert the supervision and key employees will proceed to assigned stations, picking up other employees as previously arranged.

C—"Half Out": When a storm comes in without warning or conditions develop to the stage where it is necessary to begin less than full-scale operations, a "half out" shall be ordered. In this instance a limited organization will work on slippery-street control as determined in advance by the Assistant Superintendent. Each Supervisor and other supervising employees must know in advance the extent of operational limit for "half out."

D—All Out: This is called when a serious condition develops. Every possible means of transportation will be utilized to convey employees to their assigned work yard so that they can perform their tasks promptly. This includes private autos, city vehicles, police cars, and taxis.

Under the leadership of C. E. Brokaw, superintendent of Highway Maintenance, a complete bulletin on this ice-control procedure has been developed which is in the hands of all affected personnel.

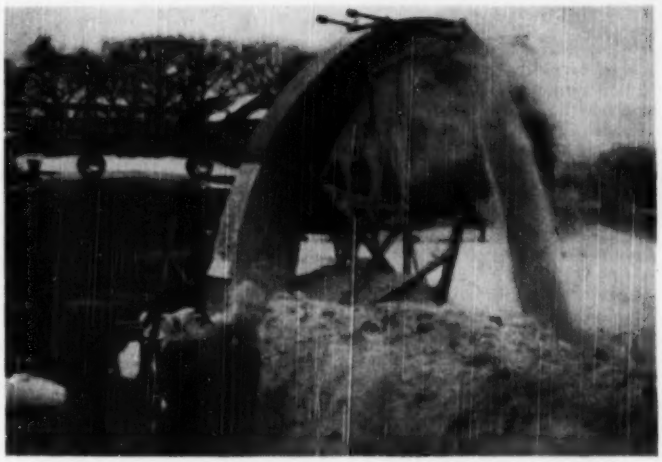
Weather Forecasts

Accurate weather forecasts are of utmost value in any snow-removal program. And a well-organized system will have active contact with representatives of the local weather bureau, weather-forecasting facilities at the airport, or anywhere else that offers possibilities.

Hartford, Conn., uses a private weather-forecasting service to supplement Weather Bureau reports, and claims 75% accuracy. The service costs $375 for the winter season.

No Refuse Forces Used

Hartford, under Royal Thompson, Director of Public Works, centralizes snow-removal operations in the Public Works Yard. The Hartford program does not use refuse forces; Director Thompson feels that refuse collection must continue. The loss of one day throws crews into expensive overtime. Neither does he use other city employees, finding that their lack of training makes them inefficient and expensive.



At Needham, Mass., a SnoGo boosts snow off the street into an adjacent lot.

Streets clear of parked cars are a great help to the efficiency of the snow-fighting crews. In this respect, Hartford gains great assistance from its Police Department. The Police place a "No Parking" sign in downtown areas. Cars that fail to heed it are towed away. The charge is $3 for tow service, $1 fine.

200 Miles in 12 to 18 Hours

Hartford has 200 miles of streets to plow, 125 miles of which are in the downtown area. As a rule the downtown area is plowed between midnight and 6 a.m. If a storm ends at midnight, the crews plow main arteries and the downtown area first, the loaders going to work at 7 a.m. After that, the plows go out to the residences. If the snowfall ends early in the day, the crews reverse their procedure and plow the main arteries and residences first, send plows to the business districts at midnight. Plowing is complete in 12 to 18 hours.

Equipment Needed

No one has set any standards that would establish equipment requirements for snow removal. As an alternate, one can look only at inventories of cities where snow is a problem. Buffalo, N. Y., is one. Significant data on this city are as follows:

Population	576,000
Area	42 square miles
Paved Streets	612 miles
Unpaved "	28 "
Parkways	31 "
Average snowfall	74.1 inches per year
Highest "	126.4 " " "

To remove this snow, Director of Streets Louis Fest uses this equipment:

- 10 large V-plows on FWD trucks with wing plows
- 122 5-7-ton trucks, White and Autocar, that can mount plows quickly
- 12 heavy-duty Federal trucks with sand-spreaders and plows
- 12 power graders
- 6 snow loaders
- 6 SnoGos
- 5 Tractor-bulldozers
- 6 sidewalk-tractor bulldozers
- 82 11-foot-blade plows
- 30 8-10-foot-blade plows
- 1 tank truck to fuel equipment in the field

In Greenwich, Conn., with 185 miles of streets, Commissioner of Public Works Joseph Cone uses this equipment for snow removal:

- 1 Barber-Greene loader, Caterpillar treads
- 1 Barber-Greene loader, rubber-tired
- 1 SnoGo rotary
- 2 Caterpillar Crawlers with V-plows
- 1 International diesel-powered bulldozer
- 1 Ford Ferguson sidewalk tractor
- 2 8-ton trucks with 11-foot Walsh Holyoke plows
- 2 8-ton Autocar trucks
- 2 Walter Snow Fighters with V and straight plows
- 2 4-ton International trucks with 8-foot Good Roads plows
- 12 smaller trucks
- 1½ yard Lorraine power shovel to load sand
- 1 Ford Ferguson tractor

Seven of the trucks listed above above Tarco Scotchman salt spreaders when

needed. During heavy snows, Commissioner Cone can call on the use of certain hired equipment. These include 2 power graders, 15 hired trucks ranging from 4 to 8 tons, and 1 small four-wheel-drive truck with a plow. Nine of the hired trucks can furnish their own plows. The remaining seven must mount town plows.

Grand Rapids, Mich., with 407 miles of streets, uses rock salt to keep snow mealy and easy to clear. It has 90 pieces of equipment, as follows:

- 2 Athey snow loaders, belt type
- 1 Haiss snow loader, bucket type
- 12 Federal trucks, 6 and 7 tons
- 4 International trucks 4 and 6 tons
- 14 Ford trucks 1½-2½ tons
- 2 Galion graders
- 30 truck plows
- 14 underbody scrapers
- 11 sanders

Work starts when 2 inches of snow falls. Streets are cleared 12 hours later.

Rome, N. Y., has an unusual structure, with an inside district very much resembling an average city, and an outside district similar to a fringe rural area. The inside and outside districts operate separately but under the same Commissioner of Public Works. The inside district has 120 miles of streets. The Department of Public Works uses this equipment to keep them clear:

- 4 heavy-duty trucks with four-wheel drive
- 2 2-wheel-drive trucks
- 1 Rome grader
- 1 Joy snow loader
- 1 bulldozer
- 1 Byrs snow plow
- 4 light industrial tractors

The Department also uses salt at the rate of 500 pounds per mile on an 8-foot spread, applied by a Tarco Scotchman spreader.

Truck Loading

Snow-removal work has quickly demonstrated that a man with a loading machine can out-perform a whole crew of hand loaders easily. George Kling, Superintendent of Streets, Union Township, N. J., reports that his crews load trucks at the rate of one truck, holding 7 cubic yards, per 2¼ minutes. Superintendent Kling uses a Nelson conveyor-type snow loader that finds plenty of work to do during the rest of the year. This loader has a removable snow boom which is replaced by a bucket boom for loading snow, dirt and cinders during the road-maintenance season.

Bigger cities as a rule can afford to keep specialized equipment such as the fast-operating snow blowers. In Toronto, for example, Street Commissioner Harold D. Bradley estimates that one snow blower can do the work equivalent to 500 men[1]. Moreover, it frequently can do the work under difficult storm conditions where men could not work. Toronto has six Sicard blowers, three SnoGos and one Barber-Greene loader. It has 150 miles of streets to clear.

In general, most cities like to own as many trucks as they can for snow-removal purposes in order to have better control over them. But frequently the rental price of the trucks is so favorable that it is uneconomical for the cities to own their own. For example, Hartford, Conn., finds itself better served by hiring trucks at $6 per hour than purchasing trucks and operating them with their own forces[2].

Boston, Mass., hires trucks on a load basis for snow removal[3]. The Public Works Department has developed a plate with three sections marked on it. The top notes the snow district that the truck is assigned to, and the number of the truck; the lower, the vehicle registration and cubic-yard capacity; the third at the side, the consecutive load number.

The driver receives a receipt stamped with the plate and the hour each time the load is dumped. This keeps an accurate record and requires no additional time.

Ice-Control Principles

Snow frequently is accompanied by ice, and with ice come treacherous driving conditions. In 1946 the American Road Builders' Association listed and classified the practices followed on major highways to control the ice that frequently forms when the plows have cleared away the bulk of the snow[1].

1. The use of abrasives plus chlorides is the most popular method; although the "bare-pavement" method is good for light snows with the temperature just above freezing. The bare-pavement method calls for chlorides only, and is designed to clear the ice away completely.

2. When combining chlorides and abrasives, present practice uses chlorides mixed at the rate of 25 to 200 pounds per cubic yard of abrasives. Most authorities prefer the chlorides in the lower range.

3. Cinders still are popular though the sulphur content may damage pavement. Some snow-removal crews use washed sand with 100% of the sand passing the ⅜-inch screen.

4. Covered bins for abrasives storage prove best, particularly when the abrasives are mixed with chlorides.

5. If chlorides are placed in solution and combined with abrasives, the two appear to give better results than they do when the chlorides are used in flake form.

Of the chlorides available either calcium chloride or salt is used. The salt has the edge in most cases from the "first cost" standpoint. However, calcium chloride apparently works faster.

Certain tests by the Iowa Experiment Station, Ames, Iowa, demonstrate the efficacy of abrasives and chlorides as a safety measure[1]. They found that good ice control could be attained by using 2 to 3 cubic yards of sand or cinders mixed with calcium chloride per mile of two-lane pavement.

They found that if the pavement is covered with packed snow, 3 to 4 cubic yards per mile are required. The cinders, sand, or slag should all pass ⅜-inch screen. Clean sand should have a moisture content of between 3 and 6%, cinders between 8 and 15%. The sand or stone should have 50 pounds of calcium chloride per cubic yard, cinders 75 pounds. The abrasives plus chlorides should be stockpiled under cover.

To measure the effectiveness of abrasives and chlorides, the investigators at the Experiment Station determined that a half-pound of sand and chloride on a square yard of pavement was as effective as 1½ pounds of pure sand.

Salt Use

Many cities use salt rather than calcium chloride[1]. Among these are the following:

Akron, Ohio	Indianapolis, Ind.
Baltimore, Md.	Irvington, N. J.
Barre, Vt.	Jackson, Mich.
Binghamton, N. Y.	Lansing, Mich.
Cincinnati, Ohio	Kalamazoo, Mich.
Columbus, Ohio	Kansas City, Mo.
Detroit, Mich.	Newark, N. J.
Fayetteville, N. C.	New York, N. Y.
Flint, Mich.	Niagara Falls, N. Y.
Glens Falls, N. Y.	Pontiac, Mich.
Hartford, Conn.	Rochester, N. Y.
Homestead, Pa.	Toledo, Ohio
Hudson, Mass.	Youngstown, Ohio

Glens Falls, N. Y., started using salt in 1940 under Edward J. Anderson, Superintendent of Public Works[4]. Mr. Anderson uses 7 tons of salt to cover 18 miles of streets and applies it with a Tarco Scotchman. He reports that he has observed no damage to the concrete pavements, although many report that the salt causes scalings.

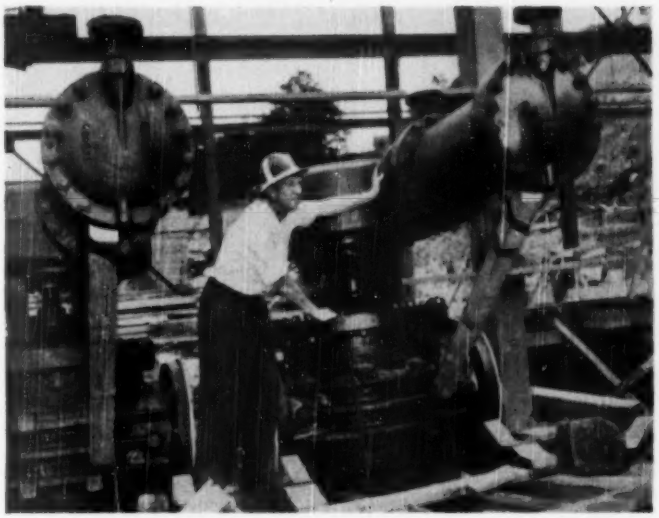
One principal fault with the use of salt is that it is reported to damage cars. A study made in 1947 by Carl Warner, Sanitation Superintendent, Detroit, Mich., discloses that the alleged damage to cars does not balance the improved street conditions[1]. He reports these advantages:

1. Almost immediate action in getting through the ice and permitting positive friction with the pavement surface, thus increasing the safety factor both to pedestrians and vehicles.

2. Dispersion of salt by the vehicles,

(*Continued on page 165*)

Biggest Standby Pumping Station



WIDE WORLD PHOTO

Hubert Curley, New York City Board of Water Supply engineer, looks over one of the valves used in the new 100-mgd pumping station in Chelsea, N. Y.

New York City completes emergency pumping station that can draw water from the Hudson River if the upland supply becomes dangerously depleted

RARELY has there been a better example of the old quotation, "He also serves who only stands and waits," than the new 100-mgd pumping station being completed at Chelsea, N. Y., that will supply an emergency reserve for New York City's famous aqueduct system.

New Pumping Station Constructed During Water Shortage

The pumping station was started when New York's water reserves looked desperate. At that time they dropped to around 30% of normal. At the American Water Works Association meeting last spring, authorities stated that when the reserves dropped to 25% the system was virtually at the failure point. To hasten construction, the Board of Water Supply drew up a contract that gave the contractor a bonus of $5,000 for each day he completed the project ahead of schedule and penalized him for each day that he passed the November 15 deadline.

This is the first time that New York City has drawn from the Hudson River, whose waters are generally considered too polluted to be useful. For two years, however, the Department has made tests of the water in the area of the pumping station and has reported it satisfactory.

The pumping station draws water from a point 656 feet off shore and 40 feet below the surface. The river water will be delivered through a 72-inch reinforced-concrete, Lock-Joint intake pipe to an on-shore pump chamber, where it will be heavily chlorinated and carried by means of five pumps through a 54-inch steel discharge pipe into an existing 49-inch riser pipe in the shaft which connects to the Delaware Aqueduct tunnel. Each pump can handle 20 mgd.

Biggest Deep-Well Pumps

The pumps that the station will use are believed to be the largest deep-well multi-stage turbine pumps ever made. The pumps use five stages, and are designed so that the down thrust is completely balanced out to reduce the thrust-bearing load. The pumps are being supplied by the Peerless Pump Division of Los Angeles. They are powered by 2,500-hp, 900-rpm synchronous General Electric motors. Each can deliver 20 mgd against a 600-foot head. The pump-bowl units are 12½ feet high and weigh 6 tons. The weight of each complete pump and motor is about 27 tons.

Designed Under Open Specifications

The pumping station was designed under open specifications. Bidders were allowed their choice of vertical or horizontal pumps and were asked to submit detailed drawings showing how they proposed to build the station.

The project has been constructed as part of the work of the Board of Water Supply for the City of New York. Irving V. A. Huie is president of the Board. Hubert Curley is project engineer, J. J. Koshear, Jr., is project engineer representing the pump manufacturer.

FOR STREET WORK IN MOBILE, ALA.,

Bankhead Tunnel tolls have been such a lucrative source of revenue that the City of Mobile has been able to undertake a 92-mile street-paving program by refunding the tunnel bonds.

A Toll Tunnel Provides Half the Funds

Largest street-paving program in the South gets aid from surplus toll revenue

By WAYNE F. PALMER
Palmer and Baker
Consulting Engineers
Mobile, Ala.

THE City of Mobile, Ala., has inaugurated a $7,000,000 street-paving program with unprecedented financing behind it.

One-half the cost of the program, one of the largest municipal-paving ventures ever undertaken by a Southern city, was financed, in effect, through surplus toll revenues from Mobile's Bankhead Tunnel. A $5,000,000 refunding issue of Bankhead Tunnel, revenue-anticipating bonds, floated in 1949, provided $3,500,000 for street improvements. The balance of $3,500,000 for the $7,000,000 project will be raised by assessments against property abutting the street improvements.

Assessments

This means that property owners benefiting directly from the paving program will have to pay only 50 cents on the dollar for the improvements, and general taxpayers of the city will not be assessed one penny. Property owners against whom assessments are made may pay them in small annual installments over a 10-year period, if they desire.

The venture will embrace 92 miles and take three years to complete.

There was no legal precedent for refunding revenue bonds and extension of the use of the proceeds, but the Mobile Circuit Court upheld the validity of the proposal and the Alabama Supreme Court subsequently affirmed the opinion. The firm of Mitchell and Pershing, New York City bond attorneys, was retained by the city to pass on the validity of refunding the Bankhead Tunnel bonds and approved the procedure.

With the deck cleared for action by the courts' ruling, the City of Mobile has twice refunded the tunnel bonds and diverted $3,900,000 to a special street-construction fund. The first refunding in 1943, within two years of the tunnel's opening, produced $400,000 for a street-resurfacing program, in the western section of the city.

In less than a decade, then, the Bankhead Tunnel has been the means of financing street improvements almost equivalent to its original worth of $4,000,000.

The new municipal paving program will be city-wide in scope. Contracts for the first 22 miles of the 92-mile venture were let by the City Commission on August 22. Contracts were awarded subject to the sale of $3,500,000 in public-improvement assessment bonds. The bond sale is expected to be completed in September and the paving work will start shortly thereafter.

List of Successful Bidders

Successful bidders for the initial streets in the huge program were:

Harbert and Cargile, Mobile, Contract No. 1, $632,836.11.
Laidlaw Construction Co., Mobile, Contract No. 2, $554,733.25.
Foster and Creighton Co., Nashville, Tenn., Contract No. 3, $441,220.57.
Hancock Construction Co., Mobile, Contract No. 4, $431,604.37.

The contracts call for completion of the work in 225 to 250 working days. The work includes concrete paving, gutters, curbing and storm sewers. Our firm already has plans and specifications ready for an additional 30 miles of streets; the last 40 miles of the

program is expected to be let before the end of the year.

In addition to being the backbone of municipal paving-financing in Mobile, Bankhead Tunnel has proved a tremendous time- and money-saver to both local and cross-country motorists and the trucking industry. The 20,000,000th motor vehicle passed through early in August. T. Gaines St. John, City Tunnel Superintendent, estimated at that time that the tunnel has saved motorists more than 140,000,000 miles of travel and over $10,500,000 in gasoline, oil, and depreciation since the tunnel opened for general traffic in 1941.

Bankhead Tunnel, also designed by our firm, was financed entirely with federal funds. The Public Works Administration contributed a $1,500,000 grant for the project and the Reconstruction Finance Corporation authorized a $2,600,000 loan for the project, secured by revenue bonds, issued by the City of Mobile. The financing was accomplished without any lien whatsoever on the ad valorem taxes or other revenues of the city.

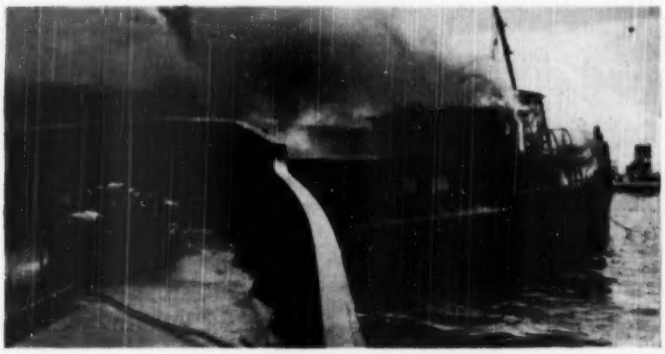
It was the first vehicular tube built in the South. It cuts 7½ miles off travel between the city and the Mobile Bay Causeway, a link of U. S. Highway 90 and Highway 31. Bankhead Tunnel is of trench-type construction and built of prefabricated steel and reinforced-concrete sections.

Commission Members

Membership of the City Commission, under whose administration the paving program is being undertaken, consists of Charles A. Baumhauer, Mayor; Elbert M. Megginson and Joseph R. Mitternight. Harry L. Fisher is City Engineer and Harry Seale, City Attorney.

Two Colossal Pieces of Municipal Equipment

SEATTLE'S fireboat *Duwamish* is said to be the most powerful in the world. Its pumps and nozzles can throw 22,000 gpm. She recently had a chance to show her quality before nearly 150,000 spectators at the city's first annual Seattle Sea Fair. The test was the burning and extinguishment of the historic old steamship *Bellingham*.

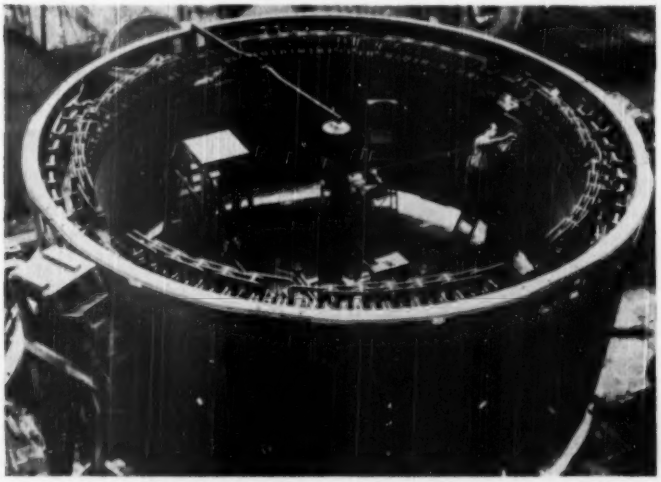


Prow of Seattle's fireboat *Duwamish*, operating on the old historic steamship *Bellingham*, which was built in 1882.

Built in 1882 for the Alaska Steamship Company, the 140-foot *Bellingham* carried miners to Alaska during the Gold Rush. Several hundred gallons of fuel oil were sprayed over the decks and hull, and the ship was aflame from stem to stern in 17 seconds. Then the alarm was turned in.

Seven minutes later the *Duwamish* had left her berth, traveled a mile to the fire, and put it out. As soon as the flames were beaten down a crew took fire-fighting equipment aboard the hot hull and extinguished the remaining fire. The work was under the direction of Fire Chief William Fitzgerald and Assistant Chief Robert Rogers, with Lieutenant Bud Burns leading the fire fighters.

The vessel's power plant is a diesel-electric unit made up of two 900-hp Cooper Bessemers, through Farrell Birmingham herringbone reduction gears to twin General Electric generators, to twin General Electric motors. The monitors are supplied by two single-stage De Laval pumps rated at 12,000 gpm each.



Building Seattle's newest water-wheel electric generator.

Seattle's New 580-Ton Electric Generator

Another big Seattle event was putting the finishing touches to a 66,700-kva water-wheel generator built at the East Pittsburgh plant of the Westinghouse Electric Corporation. When installed in the Gorge power house on the Skagit River, it will be in the company of three other Westinghouse generators, two of which have been in operation since 1921.

The new generator is really big-time municipal electric power. It weighs 580 tons, stands 21 feet high, and is 36 feet in diameter. The rotor alone weighs 28 tons and turns at a speed of 164 rpm. The two workmen shown are using a pin gauge to check the stator for roundness.

Galena's Budget Stretcher

New maintenance equipment improves streets, steps up snow removal, and saves money

By R. F. MOTT
City Manager
Galena, Ill.

GOOD equipment, the record clearly shows, pays dividends to the big city. On the record, also, are the savings in money and manpower that it can earn for a little city like ours.

Galena, Ill., has a population of 5,000, and has enjoyed a slow, substantial growth over the past 20 years. These growths, as all practicing officials know, are accompanied by the need for paving rejuvenation, new culverts and drainage systems, and numerous other items.

Hand Labor Abandoned

Until 1949, the city was forced to perform the grading, ditching, and graveling of unpaved streets, patching and repair of paved streets, and snow-removal work by relying almost entirely on hand labor. Today, however, hand power is a relatively expensive method, in view of the many mechanical devices available to make that hand power more effective.

During 1949, our City Council decided to take advantage of the savings that the proper equipment can bring, and called for a bond issue of $20,000 to purchase some of the street equipment that we needed. The citizens backed our request by a vote of 3 to 1. The results have been rewarding.

Service Up—Costs Down

Although the revenue for the fiscal year 1949-50 was $5,773.69 less than the previous year, and the administrative cost was up an estimated $5,439.98 over the past fiscal year because a city manager was hired, we reduced the deficit in the general fund by $2,947.81 by May 1, 1950. This saving has been achieved through an overhaul of the city practices, the introduction of new ideas, and the adoption of new methods characterized by our new equipment.

Then, too, even though street services, such as sweeping, snow removal, grading, etc., were expanded and the conversion of the city dump to a sanitary landfill was begun, the costs of operating the Department of Streets and Improvements were $7,805.68 less in 1949-50 than for the previous fiscal year.

The major equipment purchased was an Allis-Chalmers Model D motor grader with a Tractomotive end loader, a scarifier, and snow-plow attachments. This versatile machine has been so effective that it has enabled us to reduce the manpower of the street department by more than 40%. The savings in wages alone were substantial. With this low-cost, tandem-drive motor grader, it was possible to do more grading in one day than could formerly be done by the old tractor and towed grader with two men in one week. It has dug ditches in four minutes. Formerly, it took one man with a pick and shovel four days to do this work. The ability of the end-loader attachment to save time was also proved conclusively; it takes the Model D motor grader four minutes with two men—an operator and a truck driver—to load a truck with material, where formerly it took four men 25 minutes to do the same work.

Other streamlining included the overhauling of the old RD4 Caterpillar tractor, and the mounting of a dozer blade; the purchase of a Roscoe street cleaner; the purchase of an Etnyre 600-gallon asphalt distributor; the purchase of an Allis-Chalmers, Model I-B tractor, mounted with a Detroit Harvester weed-mower; the purchase of a GMC, Model FC 351 dump truck, a Chevrolet ¾-ton pickup truck, and miscellaneous small equipment, such as a material spreader, a steam cleaner, sewer-cleaning tools, etc.

Galena's roads are not ordinary rights-of-way. They present a great challenge. Many of our main travel routes have better than 22% grades. In spite of this, last winter's snow-removal program was carried out with satisfactory results. Snow in the business district was removed at a rate of about 150 yards per hour by the Allis-Chalmers grader. This, of course, followed the procedure of windrowing the snow, picking it up, and dumping it into trucks—all with the same machine. Trucks were our chief problem. Some of the merchants donated trucks with drivers, but the grader could have loaded even more if they had been available.

Grader Does Yeoman Work

Throughout the spring and summer, the grader has been working at grading, bank-cutting, sloping, and ditching, and spreading gravel in preparation for placing an asphalt binder on as many unpaved streets as possible.

While, in some instances, it has been necessary to use the bulldozer in conjunction with the grader, because of the many large boulders in shoul-

Grades of 22% are handled with ease by Galena's big new Allis-Chalmers grader. Note the Tractomotive bucket loader at the other end of the machine.

ders, generally the grader has been able to handle all work from shaping the base to the finished grading job. The steepness of many residential rights-of-way demands adequate and precise ditching for the control of high-velocity run-off. Now, most of our unpaved roads are worked to the point where they will be easily passable even in bad weather.

Further savings to the city are accomplished by careful planning and scheduling of work in the street-building and maintenance program. Although attention is given to emergency complaints, sectionalized working on streets is the usual program. We repair roads, remove snow, and clean streets in an orderly manner, rather than waste time and equipment by running helter-skelter through the city taking care of individual complaints.

Other work in the street department, under way or just finished, includes construction of off-street parking by leveling and surfacing vacant property in the business districts, providing access to new industrial sites to foster the interest being shown in this community by manufacturers, and the constant development of right-of-way to meet the rate of expansion. Our new equipment makes the projects possible.

Public Library Facilities in the United States

SERIOUS deficiencies in the organization of local public-library systems are reported by the Public Library Inquiry, a three-year study made for the Social Science Research Council at the request of the American Library Association under a $200,000 grant from the Carnegie Corporation. The concluding report of the Inquiry, written by its director, Dr. Robert D. Leigh, former president of Bennington College, reveals the following facts:

1. Small, poor library systems, though comprising two-thirds of those operating in the nation, serve only a tenth of the population that has access to libraries. They have annual budgets of less than $4,000, own less than 6,000 books, buy an average of 330 titles each year (mostly fiction chosen on the basis of sales volume), provide few reference facilities and are poorly staffed.

2. Municipal libraries are only 10% of the total, but serve half the library users in the country. Their budgets range upward from $25,000, their bookstocks include more than 25,000 volumes, they render fair to good service, and are able to buy at least 5,000 titles annually.

3. A quarter of the country's libraries fall somewhere between these two groups.

4. Nearly a fourth of the population, or 35,000,000 Americans, receive no library service—nearly all these are residents of unincorporated or rural areas.

5. Two-thirds of the villages with populations of 5,000 or less have been unable to maintain independent libraries.

6. Operating costs for all public libraries in 1948-49 totaled just under $100,000,000, or 2% of expenditures for the public schools. State aid has been negligible.

To function properly, the Inquiry found, a library system should operate on a budget of $100,000 and should be manned by a team of four trained persons who can catalogue 24,000 new titles each year. There are too many small, independent library systems at present, the Inquiry reported, which has resulted in inequalities and duplication.

Recommended is the establishment within a decade of a series of library "federations" that would reduce the number of systems from 7,408 to less than 1,000 with broader facilities. Financial aid from state governments totaling $50,000,000 over the next ten years is urged by the survey to enable these "federations" to afford not only adequate circulating collections but to pool their resources for the acquisition of noncommercial film, music, and art libraries.

Federal grants at present, the study reports, would be wasted in half the states if measured by their permanent contribution. It suggests that state library associations be strengthened before federal aid, but recommends that federal funds be applied to forming nationwide "networks" among all libraries —public and private—for the exchange of research material.

A Look Ahead for the Public Library*

WE MIGHT have less than a thousand public library systems which together would serve the whole population. Some would be the familiar city systems having a headquarters library and a number of branches. But by extension, contract, or other cooperative arrangement, a city system would serve the whole metropolitan region of which it is the center. Outside the cities the large numbers of small and middle-size libraries would continue to serve the communities which created them. But they would be related to other libraries in groups to constitute regional library systems with general pools of books and other materials, with specialized professional personnel available for guidance throughout the system, with a centralized system of reference and for processing of books and materials, usually located in the largest library within the system.

Each library within the system would have its own appointed librarian and library board, could order its own books, and could carry on its own distinctive library services. But in addition, its patrons might through it have access to a pooled book collection totaling at least 100,000 volumes, renewed annually by current purchases of all the books of value in each year's published output, to a central reference collection equivalent to a large city headquarters library, to a collection of music records, scores, and books, and to films circulated through libraries in the system to groups in each community. Within the regional library system a specialist in children's literature would be making her rounds of the communities, providing story hours, talks to parents, and guidance to librarians in the choice and handling of children's books. Similarly, a specialist in work with adults would be in the field, advising adult groups and stimulating the use of books, films, records, pamphlets, and government documents throughout the region. From headquarters also, a specialist in technical processes and management analysis would be available to help local librarians without professional training to perform their work more economically and expeditiously. Each day in response to telephone calls or written requests, trucks and cars would carry books, information, and library personnel back and forth between the headquarters and the community libraries. The card in any library of the region would be a regional card so that any card holder could visit any other library, including the headquarters library, to borrow or to return books or other materials. The headquarters catalogues would list and locate all the books within the region. In short, with allowances for more time in communication and transport, the regional libraries would provide the wealth of materials and services now available only in better city systems.

*From *The Public Library in the United States*, by Robert D. Leigh. Columbia University Press, 2960 Broadway, New York 27, N. Y. August 1950. 272 pp. $3.75.

Urban Progress in Latin America

By ANATOLE A. SOLOW, *Chief, Section of Housing and City Planning, Pan American Union*

Centro Urbano Presidente Aleman Largest Housing Project in Mexico

"GRANDIOSE," "revolutionary," "overpowering," are attributes which fit quite properly the newest and largest housing project just completed in Mexico. Named in honor of President Aleman, whose slum clearance and housing program is an outstanding feature of his administration, this project is not only remarkable for its size but for its architectural, city planning, and social concepts.

Intended for government "white collar" employees rather than for workers' families, the "Centro Urbano" meets the urgent need for better housing of the lower-middle-class bracket. White-collar workers have been the persons most adversely affected by inflation and by the devaluation of the peso. A clerical salary of 150 pesos a month is less than $20. As a result the Mexican middle-class family has been pushed into the slums.

It is noteworthy that "Centro Urbano" was built by the Direccion de Pensiones Civiles (Pension Fund) with its own funds and without government subsidy.

Covering an area of approximately 10 acres in Mexico City, the development contains 1,080 apartments in six 13-story and six 3-story buildings. The density is 400 persons per acre and the coverage is only 20%.

It is worthwhile noting that while Le Corbusier's concepts have been the center of stormy controversies for the past 20 years, and are on the whole rejected by planners in the U. S. and England, his following is extremely strong among architects in Latin America, as evidenced by recent buildings in Brazil, Colombia, and Mexico. "Centro Urbano" accepts the "vertical" solution, thus following the principles of Le Corbusier and incidentally those of the New York Housing Authority. Tall apartment buildings at high densities are undoubtedly the result of high land values in central urban areas, and it should be remembered that in many Latin American capitals land values are equal to or exceed those of the principal urban centers in the States.

The project was designed by Mario

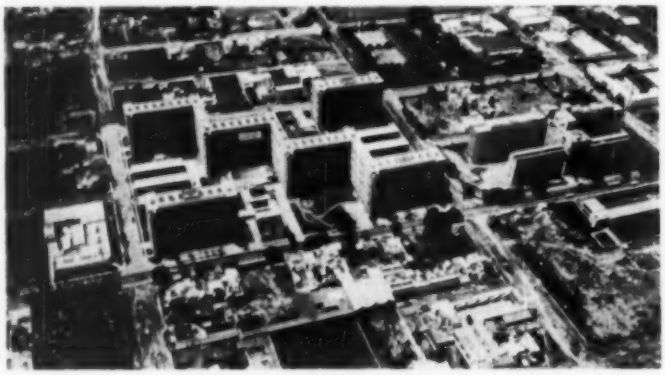
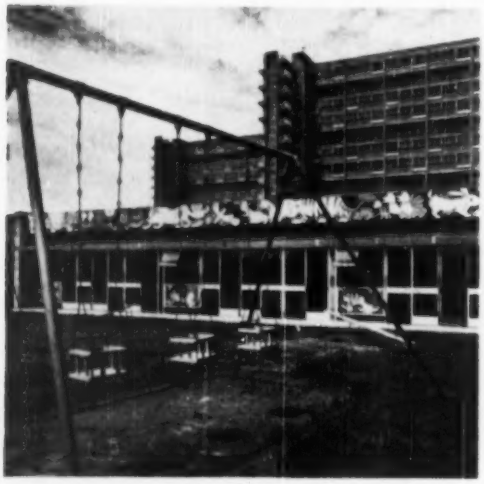


PHOTO COURTESY OF COMPANIA MEXICANA AEROFOTO, S. A.

Aerial view of Centro Urbano Presidente Aleman.



Playground in Centro Urbano Presidente Aleman.

View of apartments and offices of the administration.

Pani, Mexico's leading contemporary architect. Having six children of his own, Mario Pani knows about "planning for family life" and his solution is studied to the minutest detail, starting with the design of individual apartments, following through with a remarkably interesting site plan, and finally integrating a variety of community facilities.

Apartments in the 13-story buildings are of the two-story maisonette type requiring public halls and elevator stops at every third floor only, since some apartments have their bedrooms below the living room and some above. The ground floor of the buildings is left for shops, services and circulation areas. For Mexico City, where most persons still depend on hot-water heaters for washing and on the corner grocery store for a telephone, the building services are luxurious. All units have hot and cold water, telephones, and incinerators.

There are gardens, auditoriums, play patios, a nursery school and a kindergarten; a clinical center; post office; a laundry with individual washing machines for housewives; a swimming pool; a cinema and two schools.

Completed at a cost of approximately $2,400,000, "Centro Urbano" illustrates well the dynamic developments of housing and city planning in Mexico.

The 1950 Census of the Americas

THE YEAR 1950 is a landmark in the history of the Americas, for in that year, for the first time, a census of population, agriculture, housing, and industry is being taken simultaneously in all 22 American countries.

The census of the Americas is a unique venture in international statistics. Under its program, each participating nation is taking its own census in accordance with the resources and needs of the country. However, to attain inter-American comparability of final results, each nation has agreed to use certain basic minimum standards as to census items, definitions and published tabulations.

Housing is scheduled to receive major consideration in the census of the Americas. Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Honduras, Paraguay, Peru, Venezuela, and Uruguay are using detailed housing questionnaires. Eight of these countries have already completed the field enumeration. Haiti, Mexico and Panama are including questions on housing in their population schedule.

One more survey does not raise any special interest in the United States, which is the most statistically minded nation in the world. But in many countries of Latin America this will be the first attempt to obtain data on the number of urban and rural dwellings, overcrowding, sanitary facilities, construction materials, rents paid, ownership, etc. In some countries detailed housing surveys of certain urban areas have been taken at one time or another, and have high-lighted the magnitude of the housing problem. Thus, for instance, in one of three principal slum areas of Panama City, 90% of the 4,600 families share outside showers at the rate of six or more families, and 72% share outside toilets at the same rate of overcrowding. Incidentally, it was in this survey in Panama that the housing appraisal technique of the Committee on the Hygiene of Housing of the American Public Health Association was used for the first time outside the continental limits of the U. S. Overcrowding is widespread in many countries south of the border, and its intensity is surprising, with frequently as many as 10 people sharing a single room. Lack of sanitary facilities is another major deficiency. According to the 1941 census of the Federal District of Caracas, capital of Venezuela, close to half of the 54,000 dwellings had no toilets or used simple latrines, and had to have water *carried* to the house.

The 1950 census will provide for the first time invaluable information to housing agencies for estimating housing need and for establishing policies and programs. Private industry and investment agencies will also greatly benefit from the census, and last but not least, urban and regional planners will find basic statistical data without which technical work is impossible. It is predicted that the census will show a staggering increase in the size of most capital cities in Latin America, and will open the eyes of many officials to the need for urban planning.

Participating Organizations

A tremendous amount of preparation went into the organization of this undertaking, not only on the part of each country but also by the Inter-American Statistical Institute, which spearheaded the movement by setting up a working committee five years prior to the target date of 1950. The United Nations and the FAO collaborated continuously. The Pan-American Institute of Geography assisted with map preparations and cartography. Perhaps the biggest impetus was given by the Office of International Statistics of the U. S. Bureau of the Census, which organized fellowships and training courses for hundreds of Latin American statisticians, and which made statistical experts from the States available as consultants to many countries.

The 1950 census of the Americas exemplifies one of the most successful efforts at international technical cooperation, and the value and importance of this undertaking to the social and economic relationships of the American nations cannot be overestimated.

Costa Rica Builds Prefabs in Prisons

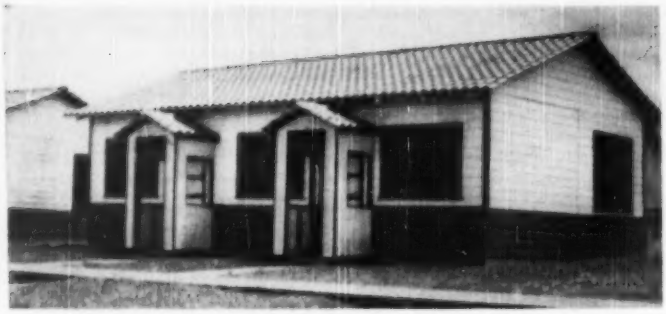
A UNIQUE and successful solution of low-cost housing is in progress in Costa Rica. Facing the universal problem of how to bring decent and sanitary homes within the reach of low-income families, the Housing Department of the Social Security Institute — Costa Rica's official housing agency — has hit on a novel scheme.

Following a study made in 1948 by the Housing Section of the Pan American Union, Mr. Ricardo Borbon, Director of the Housing Agency, and Mr. Gaston Bartorelli, its chief engineer, developed a simple wooden prefab two-family home which can be built in 18 sections. Next, they went to the penitentiary of San Jose, and with the cooperation of the prison authorities, installed a workshop with machine tools, jigs, and modern equipment. All the work is done by the prisoners on a voluntary basis under the supervision of engineers and foremen of the Housing Department. In addition to the walls and roofs, which are completely prebuilt in the shop, such items as laundry tubs are also precast in the prison.

Houses are being produced at the rate of two per day, and transported in sections to the site where they are erected by trained crews—also convicts.

The site plan reduces paved streets to a minimum, large groups of houses being served by sidewalk approaches. The cost of a two-family house has been estimated at $1,400, including land and improvements, or only $700 per family —a cost within the reach of the average wage earner.

Each dwelling consists of one living room, one bedroom, a kitchen-dining room and a flush toilet, cold-water shower and laundry tub with running water. Consequently houses are of absolute minimum standards—about 600 square feet for the two-family house. Yet, by providing this minimum space with private sanitary facilities, the new homes are vastly better than the dilapidated shacks and insanitary slums in which many workers' families are forced to live at present. At the same time the cost has also been reduced to an absolute minimum by simple prefabri-



Costa Rica's prefabricated house as it looks when completed.

cated construction, lowered standards, more economical site planning, and the use of prison labor.

The first project for 140 families was recently completed in Las Pavas, just outside the capital. The value of having in operation a plant which can produce houses at a relatively rapid pace proved itself when over a hundred families lost their homes during a recent flood in Turrialba, a community on the Atlantic side. The Housing Department was ready to ship its prefabs to the victims at short notice.

In addition to the houses themselves, the Costa Rican experiment is producing a number of important social by-products. The Housing Department pays a small wage for the work of the convicts, which is divided into three equal parts: one goes to the convict's family, the other is used to improve his food and diet, and the third is given to him as pocket money. For each four days of work the convict's sentence is reduced by one day, and at the end of his sentence the convict has been trained as a skilled building worker, thus adding to the supply of the country's skilled manpower. The Housing Department offers to employ all released convicts and already has a number of them on its building crews.

How to bridge the gap between the cost of producing and financing an adequate house and the very limited rent-paying ability of the wage earner is even more of a problem in Latin America than it is in the United States, for the standard of living in most countries there is very low, and the earning capacity of the vast majority of families is very small. Yet housing costs are high because the capital market is restricted, production is not fully developed, and many materials have to be imported. Past experience of most Latin American housing agencies has proved that if standards are set too high, funds are soon spent on a very limited number of housing projects only, without reducing the shortage in any visible way. Consequently new solutions and techniques have to be sought if the housing problem is to be attacked in any substantial manner. One such approach is illustrated by the Costa Rica experiment. Colombia has attempted mass standardization of building elements with considerable success, and Puerto Rico, with its well-publicized "land and utility" scheme, has applied another useful formula whereby the authorities provide subdivided land improved with utilities and sanitary facilities to tenants who erect their own houses. The opinion is growing that the solution of the housing problem for the great masses of people in underdeveloped countries may come about by broadening experiments such as these and by the use of "self-help" methods of construction, whereby the family builds its own house with the assistance of the housing agency, which will make available tools, materials, equipment and advice to guide and supplement the efforts of the people themselves.

The Planning Process Defined

THE planning process—much talked about but not often specifically defined—was discussed by Carl Feiss, Chief, Community Planning and Development Branch, Division of Slum Clearance and Urban Redevelopment, HHFA, in an address presented before the National Planning Conference in Los Angeles in August. Mr. Feiss pointed out that because of the nature of the planning requirements in Title I of the Housing Act of 1949, concise definitions of the planning process and the contents of a general plan have become necessary. The latter has not been arrived at yet, he said, but he presented the Division's proposals for defining planning as follows:

There have been many attempts to define planning, and several of the most successful attempts to avoid a definition have sidestepped the issue by calling planning a process. However planning is defined—and we are not doing it here—there obviously must be a procedural system developed to produce continuing activity in local planning. To carry out the never-ending purposes behind the infinite number of details and broad objectives in the local program, an administrative process which can and must be staffed is requisite. Irrespective of the size of a city, certain continuities are essential; and while from city to city these will be conducted with varying staffs and degrees of intensity, a process of work must be adopted—a process that endures as long as the community itself. This process may be broken down into five major identifiable steps which we consider normal to any planning program, recognizing that there will be an interplay and counterplay among the steps for different phases of the local planning activity. The steps to be taken in the process are:

1. The identification of problems, goals, objectives
2. The inventorying of facts and resources
3. The analysis of the inventories and the forming of conclusions and decisions based on such analysis
4. The preparation of plans and programs drawn from conclusions and decisions
5. The effectuation of plans by means of three mechanisms:
   a. Programming
   b. Regulation
   c. Administrative operations

During these five steps one thing must be continually borne in mind. All these steps have public interest connotations, and a public-relations program must run continually and currently with each one. Public relations is not a step; it can be termed the planner's chemical seeding of clouds to create the welcome rainfall of public opinion necessary to the growth and life of sound local planning.

There is not time, nor is it necessary here, to go into the details of these five steps of the planning process. However, I do want to make it clear that unless such a process is part of the local planning program, it is doubtful that sound planning can result. We are all too painfully aware that in some localities a misapplied zoning program is made a substitute for planning; or in other places, the package-plan has been bought as a substitute for locally assumed responsibilities, or still elsewhere, there are commissions but no planning or no plans. We shall insist, as far as our authority and the provisions of the Act permit, that the planning process be established locally as a necessary and sound basis for urban redevelopment.

Students Aid Municipal Planning in North Carolina

Typical illustration from the report, "First Steps Toward Planning for Goldsboro," prepared by two graduate students of the Department of Planning, University of North Carolina.

By JOHN A. PARKER
Head
Department of City and Regional Planning
University of North Carolina
Chapel Hill

EVERY graduate student in the Department of City and Regional Planning at the University of North Carolina is required, during the course of his training, to undertake a study and report of a near-by urban area. The objective is not a master plan, but the preparation of a report to point to ways and means for a community to go about the job of developing a comprehensive planning program.

This year, groups of students concentrated on Salisbury, Thomasville, Wilson, Goldsboro, Tarboro, and New Bern. These communities were selected by the faculty in consultation with the North Carolina League of Municipalities. The mayors and city managers were visited, and the project was explained to them. Two requests were made: first, that the mayor designate a "representative group of individuals to meet at regular intervals with the students; and second, that the community agree to pay expenses involved including such items as transportation, room and board for the student while in the community, the cost of blueprints and photostats, and typing and duplication of the report.

Council Approval Needed

Although the expenses generally do not exceed $200 to $250, this nevertheless means expenditure of public funds and requires a vote of the council. Thus the community has a stake in the project before it is begun.

In most communities, the local press becomes interested immediately and asks the student to prepare a series of news releases describing the purpose and objectives of the project. This paves the way for the final presentation, which frequently takes place at a public meeting called for the occasion.

The project begins with an orientation meeting at the University, where the students are assigned to their communities and given their program. Quoting from the program, this course, which is called "Urban Planning Practice," is concerned with:

> . . . the development of a specific program which a community may follow if it is to undertake a comprehensive planning program. All the communities where students are assigned have indicated their interest in planning and have requested assistance in initiating a program of comprehensive planning. Therefore, the student is provided with an opportunity not only to deal in terms of actual community problems and organization, but also to render a service to the community by pointing out steps which may be taken in logical sequence to assure the more likely achievement of community objectives associated with orderly development and growth.

Thus, a primary responsibility is placed on the student of laying the groundwork for the development of the planning process on a comprehensive and continuing basis rather than dealing only with isolated elements, even though there is a likelihood that the community may express interest primarily in problems of immediate concern or in only one or more phases of a comprehensive program. Such limited interest, however, should not be discounted; rather, it should serve as a basis for pointing up the interdependence with and relationships to all other phases of the comprehensive planning program.

By putting the student in touch with local officials, institutions, and organizations, and enabling him to deal with actual problems in the field, the opportunity is provided to exercise judgment and imagination in the handling of planning problems and the application of planning techniques. Clear, concise presentation of proposals together with carefully correlated supporting data and text becomes a matter of major importance. Likewise, it should be borne in mind that the report should be so drawn and presented that it could be reproduced without undue expense, as there may be instances where communities wish to publish reports for distribution.

By a careful integration of all the various phases and elements to be considered, emphasizing the essential interrelationships, the resulting report should be a compelling argument, down to earth in its objective and dispassionate analysis, pointing up the major considerations in a comprehensive program and setting forth a tangible framework to guide and assist the community.

The program outlines the various aspects of community development with which the project is to be concerned, such as population and economy, land use, streets-traffic-transportation, housing, schools - parks - playgrounds and other public buildings, business and commercial areas, utilities and services,

and governmental structure and administration in relation to planning.

Members of the staff of the University Institute of Government and other departments collaborate with the faculty of the Department of City and Regional Planning in advising the students as their project progresses.

Sixteen such projects have been undertaken during the past four years. Very few of these communities had planning commissions and none of them was receiving the benefit of technical assistance on planning problems. Today, planning commissions have been appointed in nearly all of these 16 cities, three have set up continuing programs under the direction of professional city planners, and the majority of the others have employed technical help on specific problems.

One of the most interesting of this year's projects took place in Goldsboro, N. C. The students assigned to Goldsboro were Jack Gural of New York and James Wilson of Glasgow, Scotland. After the report was completed and presented to the city officials of Goldsboro, it was reproduced—not as an elaborate brochure—but as a city planning supplement to the local newspaper, the *Goldsboro News-Argus*.

Local officials have generally given their full support and cooperation to the planning projects. For example, in Goldsboro, Z. G. Hollowell, City Manager, suggested that Goldsboro follow up the report by employing jointly with one or two neighboring cities an expert planner and staff to develop a long-range program for each of the cities participating.

In New Bern, City Manager C. L. Barnhardt arranged a meeting of civic leaders in his office to hear the report by graduate students Paul Foster of Wilmington, N. C., and Mary McLean of Pasadena, Calif., regarding the city's major planning problems.

In Thomasville, the local newspapers, *The Thomasville Tribune* and *High Point Enterprise*, cooperated wholeheartedly in giving the planning efforts support and publicity. The entire Thomasville Report, by William P. Wilson of Philadelphia, was published in a series of 13 articles in the *High Point Enterprise*. After the report was completed, Mayor Harry B. Finch wrote to the University, thanking the Department of City and Regional Planning for its services, and declaring that Thomasville city officials contemplate a long-term planning program as a result of the survey.

In Wilson, after the survey by John C. Gould of Paterson, N. J., and Paul K. Brooks of Greenvile, N. C., the board of town commissioners then appointed a planning board to initiate the planning process and prepare a master plan. The *Wilson Daily Times* presented a series of nine articles during August which discussed the report and its conclusions.

Regional Planning Council Formed for Nation's Capital

RENEWED leadership for the sound planning and development of the nation's capital and its surrounding region is in prospect, now that an appropriate vehicle for the purpose has been created. Formation of a Regional Planning Council for the purpose of advancing the orderly and integrated development of the Washington, D. C., region took place at a meeting on September 17 attended by 35 representatives of the various federal, state, county, and municipal agencies concerned with the planning problems of the area.

Problems Involved

The call to action originated with the Upper Montgomery County Planning Commission of Maryland, prompted in part by local concern at the Federal Government's hastily prepared "dispersal" scheme to spend about $140,000,000 in expanding the federal establishment into adjacent Maryland and Virginia, including connecting highways and other public works.

Congress gave the scheme a cold turn-down, but the basic problems remain. The Public Buildings Service must find office space for an estimated immediate increase in government personnel of about 17,000. Moreover, an estimated 40,000 employees are at present working in temporary buildings which are deteriorating rapidly and whose maintenance costs are becoming excessive. The National Security Resources Board is also concerned with dispersal of key federal offices from the District for security reasons in case of future atomic attack.

The Conference call to action pointed out that decentralization of such proportions obviously has staggering implications for the local governments of the areas which will contain the new sites. It said, "There will be problems of water supply, sewage control, highway location, traffic, taxation, land controls, and many others. Local government's only protection against serious disruption to its immediate operations and to its long-range plans will be through participation in the planning stage of the dispersal operation."

The steering committee for the conference of the local agencies was composed of representatives from Virginia, Maryland, and the National Capital Park and Planning Commission. The latter body has been hampered in its work and program by the persistent refusals of Congress to appropriate adequate funds, or even to get its Greater Washington Plan printed at the Government Printing Office.

Cooperation Urged

In formalizing the Regional Planning Council's organization, those present at the conference unanimously agreed that "The principles underlying a rational program for dispersal are the same principles on which decentralization must be based in any case; and that such dispersal and decentralization place heavy burdens on the regions outlying the District of Columbia, and will require of their planning agencies a close inter-locking of development plans."

Louis Brownlow, well-known former director of the Public Administration Clearing House, served as chairman of the initial meeting.

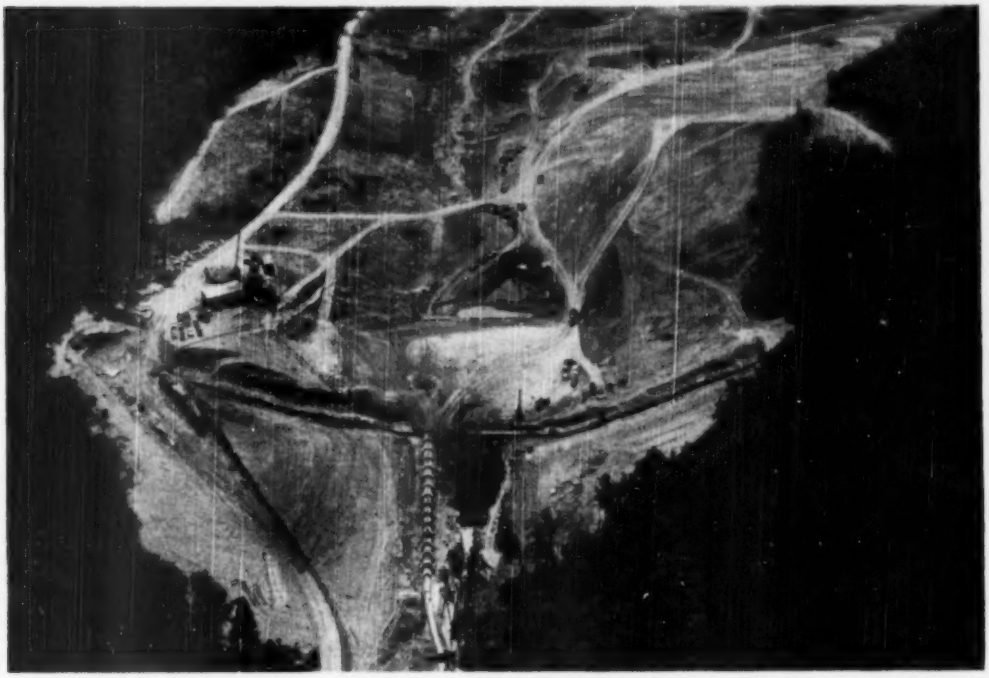
At another meeting on October 10, a constitution and by-laws for the organization were adopted, and officers elected, as follows: Chairman, Frederick Gutheim, Upper Montgomery County Planning Commission; Vice-chairman, John W. Brookfield, Chairman, Northern Virginia Regional Planning Commission; Secretary-Treasurer, John Nolen, Jr., Director of Planning, National Capital Park and Planning Commission. Acting Executive Secretary is Miss Barbara Terrett, former Assistant Director, American Society of Planning Officials.

The Washington Regional Planning Council, to be supported by contributions from the various public agencies involved, should furnish considerable leverage for focusing concern and action on the need for properly relating housing, places of work, schools, and public facilities in any dispersal program contemplated by the Federal Government.

Still to be resolved, of course, are basic questions beyond the Council's immediate program as to the extent to which Federal Government functions should be decentralized to other cities and regions of the country.

But the Council's formation is an encouraging sign that the nation's capital and surrounding region may soon provide an outstanding example of well-planned growth and development for other urban areas. It is fitting that this should be so, as the entire nation has a real interest in the capital's future. The capital region should be a symbol of the best in physical structure and arrangement for democratic living which can be achieved in our society.

Williamsport, Pa., builds new water reservoir that impounds three months' supply to tide the city over summer dry spells



COURTESY OF VANNUCCI FOTO-SERVICES

Williamsport's new dam takes form. The concrete cut-off wall and the four-part discharge pipe are in place.

No More Summer Shortages

By K. A. GLENZ
Williamsport Municipal Water Authority, Williamsport, Pa.

OUR annual late-summer dry spell is going to find us ready in the future with a 90-day supply laid aside in the upland hills as soon as our new impounding reservoir is completed. Heretofore, we have depended on mountain streams to serve the 55,000 people embraced by our authority boundaries, and during the dry spells we have had to resort to pumping from wells with a limited water capacity and of a poorer quality than that afforded by the water from the streams.

In the spring of 1949, Gannett, Fleming, Corddry and Carpenter, Inc., consulting engineers of Harrisburg, Pa., conducted a survey to determine a suitable location for a new impounding reservoir on the Water Authority property. The engineers quickly found such a location above the headwaters of Mosquito Creek, approximately 4½ miles near the present Mosquito Creek reservoir.

During the summer of 1949, test holes were dug and core drillings were made to determine the rock and ground formations. Plans and specifications were then prepared, and on March 22 of this year, the Authority advertised for bids and for the construction of an impounding reservoir which would store approximately 530,000,000 gallons of water.

Design of Dam

The dam designed by our engineers consists of a rolled-earth embankment having a crest length of 640 feet and a maximum height above the stream bed of 92 feet. The upstream slope will be 1:2½ for the upper 35 feet, and 1:3 for the remaining height. The downstream slope will be 1:2.

The circular-arc method was used for stability analysis. The factor of safety for the upstream slope is 1:5 for the complete draw-down case, and that for the downstream slope is 1:6 for full reservoir. The borrow materials to be used for the impervious section will have a maximum dry density of 135 pounds per cubic foot as determined by the Modified Proctor test. The expected compaction will be about 95% of the maximum.

The dam will be equipped with a side-channel spillway designed to pass a peak flow of 7,300 cubic feet per second from a tributary drainage area of 2.14 square miles.

Water taken from the impounded area will pass through an intake tower that has two sluice gates at two levels. Either of these will release the water downstream through a 48-inch-diameter reinforced-concrete conduit.

The project is being financed through the sale of revenue bonds bearing an average interest rate at 1.2%, which were sold to Arthurs LeStrange & Co., Pittsburgh. The engineering design of the dam and supervision of construction are the responsibility of Gannett, Fleming, Corddry and Carpenter, Inc.

An Objective View of Garbage Grinders

By WILLIAM S. FOSTER
Engineering Editor
The American City

FOR municipal purposes, garbage grinders divide into two classifications: the station grinders, and the household grinders.

Station grinders have not proved too popular. They are large units capable of macerating a whole truckload of garbage, shredding it so that it can be transported easily by the sewage flow or discharged directly into the sewage-plant digesters. One such grinder has been in use for many years at St. Louis, Mo., discharging its shredded products into the city's main outfall sewer. St. Louis, incidentally, does not maintain a sewage-treatment plant. Another such grinder has been used successfully by the City of Marion, Ind. Here the grinder is located at the city sewage-treatment plant and the shredded product is placed directly into the plant digesters. The same situation exists at Lansing, Mich., and has occurred here and there in other cities for short periods.

The household garbage grinder presents an entirely different picture. These were developed about 25 years ago by the General Electric Company as a kitchen accessory. They first started making their appearance on the market in the early '30s.

The housewife recognized them as a means of relieving her of the nastiest job in the kitchen—that of handling unwanted food wastes. But she was confronted with the fact that they were expensive to purchase and install and she had no assurance that they would not break down and become an expense and annoyance rather than an aid in the kitchen.

The municipal official saw only the fact that something else was being loaded into the sewer and conjured up all sorts of fearful results such as clogged sewers and a treatment plant overloaded to failure. The sewerage service is a thankless task anyway and the operators of these systems did not want them any more complex than they already are. The fact that they were new and had no long operating record back of them did not encourage their adoption.

They Eliminate the Decayable

Obviously, the grinders do not eliminate the task of refuse collection. Each person each day can be expected to contribute about 2 pounds of mixed refuse that our city forces have to collect. Of this 2 pounds, about a half pound will be food wastes. The food wastes are decayable, cause odors, and create fly nuisances and other difficulties. From a health and sanitation standpoint, the organic food wastes are the products we must watch. Newspapers, paper cartons, tin cans, ashes and bedsprings, which constitute the remainder of the refuse, may be unsightly but they cannot be considered unsanitary.

The grinders, therefore, will not eliminate the refuse-collection service. Even if a community were so fortunate as to have each home equipped with grinders, it still would have to send around its collection trucks to gather the inorganic portion. It would be able, however, to make the collections on a less frequent schedule, since there would be nothing in the refuse that would decay and cause trouble.

The evidence shows that the use of grinders is growing. Before the war, only one company was manufacturing them. Today several are. Ralph Furman, Superintendent of the District of Columbia Sewage Treatment Plant, has estimated that before the war only some 175,000 families were using them. Today, he finds about six companies selling something like 200,000 each year.[1] Apparently the housewife is gradually expressing her opinion that they are useful, not too expensive, and dependable. And whether the public official likes it or not, he is finding this increment of macerated garbage added to the sewage load.

They Are Rugged

The dependability of the grinder is interesting. About two years ago, Edward J. Zimmer, of the Chicago Plumbing Testing Laboratory, in Chicago's Department of Public Works, ran two grinders for a year, putting enough garbage through them to represent the table waste of an average family for ten years. In addition, he put through them substantial quantities of ashes, sand, limestone dust, glass, nails and even a couple of malleable iron fittings. At the end of the year, Mr. Zimmer found the grinders operating only somewhat more slowly than they did at first but still quite satisfactorily.[2]

With dependability established, now let us look at the sewage system that receives these macerated food wastes. First, would it be possible for the grinders to overload the sewers?

The answer to that has been quite definitely proved "no." Dr. Willem Rudolfs, Chief of the Department of Water and Sewer Research at the State Agricultural Experiment Station in New Brunswick, N. J., estimates that the grinders will increase the sewage flow about 1% and not over 2%. This has been confirmed by Morris Cohn, who states that the amount of water will be about 1 gallon per capita per day. With usual figures ranging around 50 gallons per person per day for resi-

* Delivered before the Institute of Local and State Governments, March 2, 1950.

Midwest City, Okla., maintains a high standard of cleanliness. But it would be higher if refuse crews did not have to handle putrefying garbage. The crews are loading a Gar Wood Load Packer.

dential water use, the added load from the grinders would not even be noticed.[3]

Next concern of the sewerage official is to determine whether the added solids will accumulate and clog the sewers. Enough research has been completed to set our minds at rest on this. We find tests at Oakland, Calif., and at the University of Texas[4,5], that confirm rather conclusively that if a sewer system complies with any reasonable design standard, it can handle the macerated food wastes without trouble.

Now let us turn to the sewage-treatment plant. In the past we have estimated that ground garbage added to the sewage would increase the strength of the sewage by about 30% in terms of oxygen demand and by about 50% in suspended solids. The question is whether this added burden will overload the treatment facilities. The answer is that it will increase the work of the treatment plant, but not excessively. In some cases this increased work may cut operating costs.

Let us look at the settleable solids first. These are removed chiefly by the settling tank, and this tank is designed for a fixed volume of sewage received for a stated time interval. The law of gravity causes these solids to settle, and operates just as well on 300 ppm of suspended solids as it will on 200 ppm. Therefore, the grinders will not increase settling-tank requirements.

Additional Sludge Can Be an Economy

Of course we will have to supply a little more digester capacity to receive the sludge, but this actually can be an economy if it is developed correctly. Investigators in Oakland, Calif., felt that the added sludge would mean more digestion gas that can be turned to plant power. Added sludge also meant that more would be available for sale as a fertilizer.

This added sludge-digestion gas is assuming much greater importance in the economy of sewage-treatment plants, now that the engine manufacturers have developed the dual-fuel engines that can operate on either gas or fuel oil.

The addition of the oxygen-demand content is a recognized fact that has no particular compensatory features. It will be important only if the plants are so badly overloaded that the increment might force the adoption of some sort of added treatment such as trickling filters or activated sludge when this was not supplied previously.

Let us turn now from the treatment plant and look at the garbage can. Health authorities generally are critical of it. At the recent American Public Health Association meeting, the present methods of collection, storage, and disposal of garbage were scored as the chief obstacle to successful community fly control, and fly control was directly tied to the spread of disease.[7]

Health authorities also have bluntly stated what they thought of the practice of feeding garbage to hogs. They have shown, through thorough tests, that the incidence of trichinosis and garbage-fed hogs is direct, and the infection of humans from pork obtained from these hogs is more frequent than is generally believed.

Garbage grinders, of course, will overcome both these important public-health deficiencies. It is for this reason that the American Public Health Journal has supported the use of the grinders.

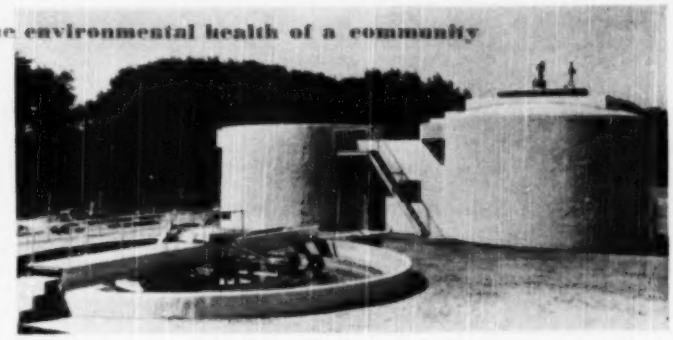
What then stands in the way of more widespread use of the grinders?

First, their cost. This runs to something more than $100 to buy, and from $50 to $75 to install.

Jasper, Ind., has set a pattern showing how this difficulty can be overcome. The Indiana State Legislature only recently enacted enabling legislation allowing cities to install these grinders and pay for them by a separate sewer service charge.[9] Jasper is the first city to undertake this service. A contract recently awarded by this city will make the grinders available to each householder for a cost of about $75 per installation. Thus, by municipal action, the cost of the grinders is cut just about half. Moreover, the people in Jasper have the advantage of selecting and installing the grinders under the direction of a competent consulting engineer whose reputation rests on his ability to render a good service based on sound technological standards.

So out of this short discussion, what do we have? We have the grinders making themselves a growing factor in home and municipal sanitation. We have reliable research data showing that their operation is dependable, even in the face of a certain amount of abuse. We find that macerated food wastes will flow without trouble in any sewer that can handle municipal sewage without difficulty. We find that the food wastes are amenable to treatment in plants conventionally used today without difficulty. We find that most health authorities welcome garbage grinders as an aid in solving one of the most troublesome problems in refuse disposal. We find one midwestern city already installing grinders in the various homes as a municipal service.

This all points to their greater use in the municipal field, another tool that aids in maintaining good health and sanitation, and another means of ultimately producing further economies in municipal operations.



Treatment-plant facilities can handle the garbage load if proper attention is given to their design.

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You Must Mean Business To Make Smoke Control Work

St. Louis found that this requires the full support of a public ready to accept broad-scale changes in its habits

By RAYMOND R. TUCKER
Former Smoke Commissioner
St. Louis, Mo.

THE experience of St. Louis has shown beyond a doubt that anti-smoke laws which exempt the domestic user are ineffectual. In the final analysis, smoke abatement requires a combination of citizens, press, administration, and competent employees; but above all, enforcement of the ordinances in every case.

Take a quick glance at the St. Louis record leading up to the remarkably successful ordinance which cut the city's smoke to an average of one-fourth its previous density. Prior to the adoption of the ordinance, the pattern of failure was pretty definitely set. A series of relatively weak ordinances would be passed. The public feeling, which caused their passage, would then subside. After each unsuccessful attempt, a feeling of apathy descended upon the community for a period of three to five years. Then conditions would become so severe that small groups of citizens would again become aroused and a new attempt would be made. This would also fail, because they did not attack the problem at its source.

Mine Was Smoke Source

The source was the mine itself. St. Louis is situated in the vicinity of one of the largest coal deposits in the United States. This is a high-volatile coal and, unfortunately, a very smoky fuel.

A committee, headed by the writer, was appointed to consider the smoke problem. After several meetings, the committee prepared and presented to the Mayor a report to the effect that the elimination of smoke would be dependent to a great extent upon the development of a smokeless fuel from Illinois coal.

To hasten this development, and to control in the meantime the type of fuel being used in the city, a "washing clause" was incorporated into a proposed ordinance. At no time did the committee claim that the washing of fuel would eliminate smoke. It did claim, however, that the washing of coal would reduce sulphur and fly ash; produce fuel of uniform quality with higher calorific value which would adapt itself more readily to underfeed stokers, and give a fuel with a higher fusing point of ash, thus improving the fuel-bed conditions and reducing clinker trouble. Hidden behind these stated purposes was the more potent reason for the clause: that it would, if enacted into law and if held constitutional, enable the division to control the fuel at its source.

Boycotts were threatened by various communities in Illinois. Newspapers said that a hardship was being imposed upon the Illinois population without obtaining the desired results, but the Board of Aldermen stood solidly behind the committee and the ordinance was passed.

Suit Filed

Within a period of 90 days, suit was filed in a federal court by a coal producer requesting an injunction against the city to restrain it from enforcing this ordinance. At the preliminary hearing this demand was denied, and the judge stated that the police powers of the city were such as to justify the use of any reasonable means for abatement of the smoke nuisance.

Ash and Sulphur Content of Fuel

The section outlining specifications of fuel as far as ash content and sulphur content were concerned was, of course, the meat of the ordinance. The enforcement of this provision presented many difficulties. To accomplish it, a companion ordinance was proposed regulating the importation, storing, hauling, and distribution of fuel within the City of St. Louis. It empowered the commissioner to license all fuel dealers, and required them to furnish a $1,000 surety bond before such licenses could be issued. It furthermore contained a provision which permitted the Board of Public Service to revoke the permits, provided any fuel dealer was convicted of violating any law pertaining to handling of solid fuel.

It was realized the results produced from the enforcement of the ordinance would not be apparent to the average citizen because the largest percentage of smoke was being made by the domestic user, who was exempt under the provisions of the ordinance. The only absolute control obtained was over the installation of new equipment above 1,000 square feet of direct steam radiation or equivalent load. When the Smoke Commissioner's office insisted that domestic installations below 1,000 square feet of steam radiation use mechanical fuel-burning equipment or smokeless fuel, it was overruled by the appeal board, which stated the commissioner did not have authority to make such demands.

Reduction in Density

Nevertheless the activities of the division led to a reduction in the density of smoke discharged from industrial, commercial, and semi-commercial plants, but this was not sufficient to show any marked improvement. The division reiterated time and time again that the then existing ordinance was not the solution to the problem—that a solution could not be had until there was an adequate amount of fuel available which was smokeless and which was sold at a price commensurate with its value.

Worst Smoke-Pall Experience

The next fall the city was visited with the worst smoke pall it had ever experienced. Visibility was reduced to a matter of a few feet. One could not see across the main thoroughfares. Newspapers demanded that the administration and the Smoke Commissioner do something, or resign. The Commissioner, when he replied to the attacks, was designated as "the great epistolarian." He was called "Tucker the Tinker." Citizens who had formerly remained quiet proceeded to express themselves forcibly. Pictures of the

city's plight appeared in a national magazine. An article was written describing St. Louis as a "city of decay." Granted it was a little rough and tough on the Commissioner, but all this public furor created a situation which led to the ultimate solution of the smoke problem.

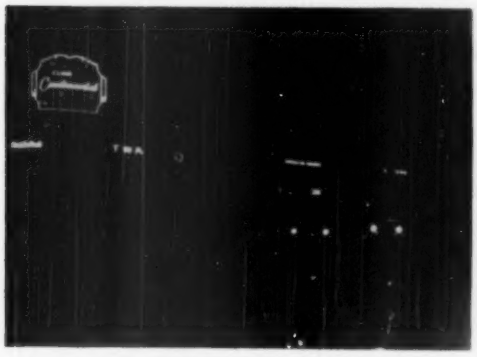
The names of all those expressing a desire for drastic action were listed in the Mayor's office, and eventually a meeting was called inviting these citizens to discuss the smoke problem. The Mayor at this meeting stated to those

habits of practically all the fuel dealers in the City of St. Louis. It was necessary to move into the city, for hand-firing furnaces, 1,250,000 tons of coal having a volatile content of less than 23%. Dealers did not appear enthusiastic. Efforts were started at the end of the heating season to persuade customers to fill their bins with Illinois coal because it was believed the commissioner would not make them take it out in the fall.

When this became known, the commissioner ruled that on and after the

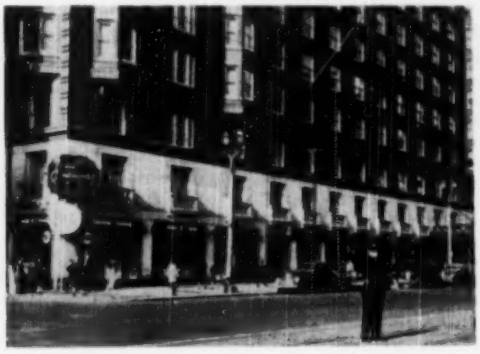
priation of $300,000 was made for the purchase of such fuel. The location of fuel in Arkansas and the establishment of a low freight rate, as well as the power of the city to engage in the fuel business if it so desired, stimulated the interest in the matter to such an extent that the million tons of fuel was provided for the city during the next heating season.

No doubt, as one reads the story and notes the presumably arbitrary powers that were conferred on the commissioner, the question of constitutionality



PHOTOS COURTESY OF ST. LOUIS STAR-TIMES

How St. Louis looked on a bad pre-smoke-control day.



This is the way the same corner normally looks. Air-pollution-controls have given the sunshine a chance.

assembled that it was his intention to appoint a committee of these citizens to investigate the smoke problem, and to abide by its recommendations. The committee was appointed, and concurrently with its work, a committee of the associated engineering societies of St. Louis was also considering ways and means for the elimination of smoke. The latter committee's report was filed at the same time as that of the citizens' committee and was in agreement with it. The citizens' committee report was based upon two cardinal principles:

1. That all those who desired to burn high-volatile fuel must employ mechanical fuel-burning equipment to burn it smokelessly.

2. If they did not desire to use mechanical fuel-burning equipment, then they must use a smokeless fuel.

The committee further recommended that no one be exempted from the provisions of the ordinance. All were to be treated alike.

Changed Coal-Buying Habits

The passage of this law had many ramifications. It changed the buying habits of approximately 1,000,000 people. It changed the merchandising

first of May no fuel could be sold in the City of St. Louis for hand firing which contained more than 23% volatile content, and warned the purchasers of fuel that if they bought fuel having volatile content in excess of 23%, they would be required to remove it, and be liable to prosecution. It had been intended to enforce this provision progressively. Instead, all provisions of the ordinance went into effect immediately.

New Supply Found

The citizens' committee became active and went to the sources of the supply. Eastern fields in the beginning were not interested, so a trip was made to Arkansas to investigate coal fields in that state. An ample supply was found there.

The committee had recommended that a provision be put in the ordinance permitting the city to declare an emergency when and if there was not a free and easy flow of smokeless fuel at a price commensurate with its value. It also authorized the city to contract for the purchase of smokeless fuel for use in St. Louis. The provision of this section permitted this fuel to be distributed either through normal channels of trade or by the city itself. To support this, an appro-

arises. In the case of Ballentine vs. Thomas Hester, City Marshal, City of St. Louis, the Supreme Court of Missouri, May term, 1942, ruled that the ordinance was constitutional. The interest in preserving the ordinance was such that the St. Louis Chamber of Commerce paid for the defense and joined in the case as an *amicus curiae* (friend of the court).

Results of this last finishing touch to the St. Louis program were immediate. Official records showed an average reduction of 75% in smoke in St. Louis beginning the very next year after the passage of this last ordinance and continuing even through the war years. Besides reduction in the number of hours of dense smoke, there was an increase in the number of hours of sunlight over that of previous years.

Attention-Getter

The success of the program has attracted almost world-wide attention. Inquiries for details have been received from 221 cities in 39 states of this country, with 13 from Canada, three from England, and two from South America. And the answer to all is the same: Everybody in the community has a hand in air pollution, and everybody must take part in its elimination.

PREPAID MEDICAL CARE

For City Employees—

A conspicuous example of official and voluntary collaboration in the local community

By NEVA R. DEARDORFF, *Director Division of Research and Statistics Health Insurance Plan of New York*

SINCE 1947 the men and women who work for the City of New York have had the privilege, with half of the cost paid by their employer, the city, of belonging to the Health Insurance Plan of Greater New York and also to the local Blue Cross for needed hospital service. Their coverage extends to wives, husbands, and unmarried children under the age of eighteen. Employees of the Board of Education and the Board of Transportation, as well as those of the regular city departments, are included in the program. Altogether now (July 31, 1950) the City of New York participates in health insurance for 217,600 persons. While it was originally intended that only those of small or "moderate" means would be covered by HIP, persons of all incomes are now eligible—provided those with base wage or salary over $5,000 if without dependents, and family income over $6,500 if with dependents, pay an additional 50% on the basic premium. The total weekly cost for combined HIP-Blue Cross coverage to the single employee at the base rate is approximately 50 cents, to the couple $1.00, and to the man with a family, whatever the number of eligible persons, $1.50, with the city paying a like amount. The employee's share of the premium is paid through payroll deduction on the specific authorization of the employee, who is free to elect or reject membership. On this rate structure the Plan operates without subsidy or aid of any kind. It attained self-support within fifteen months after it began operation.

HIP Gives Comprehensive Care

The stipulated medical care under HIP covers, with very few exceptions, all conditions requiring medical service. The subscribers are entitled to general medical care, specialist and surgical care, preventive services, maternity and pediatric care, all diagnostic laboratory procedures, roentgen examinations and roentgen therapy, radium and radon treatment, physical therapy, administration of blood and plasma, and psychiatric advice and guidance, but not prolonged treatment. They are also entitled to visiting-nurse services in their homes and to ambulance transportation. No additional charge is made for any service except for night calls between 10 p.m. and 7 a.m., for which a fee of $2 may be collected by the medical group. Many of the groups ignore this unless there is abuse. All types of illness and disability are covered, including pre-existing conditions. There are no physical examinations for admission and no age limits or waiting periods.

Not included are treatment for drug addiction, acute alcoholism, or chronic conditions such as mental disease and tuberculosis, which require care in an institution other than a general hospital. Drugs, dentistry, prosthetic appliances, eyeglasses, all substances from donors (blood, plasma, skin, bone, etc.), and purely cosmetic surgical measures are not covered.

Thirty "Medical Centers"

To render the medical services offered to subscribers, the HIP now contracts with 30 groups of physicians who operate "medical centers" scattered throughout the five boroughs of New York City. These groups are autonomous medical partnerships, with 20 to 35 physicians who serve either as personal and family doctors or as specialists. All of the 12 basic medical specialties must be represented in the group. There is great emphasis on the development of teamwork medicine comparable to that which has been cultivated in such institutions as the Mayo and the Leahy clinics. All of these groups must meet the standards laid down by the HIP Medical Control Board, the members of which are eminent physicians chosen by the HIP Board of Directors, the New York Academy of Medicine, the county medical societies, and the operating medical groups. All services rendered by the medical groups are currently reported to HIP and are subject to detailed review at any time by the central staff of the HIP.

Subscribers are free to choose among the groups serving their borough of residence and among the family physicians in the chosen group. A subscriber may also change his personal physician and his group if he is not satisfied.

A medical group is compensated by a capitation fee for each enrolled person who selects it. With reasonable efficiency in the operation of the medical center, the capitation is sufficient to provide an average annual net compensation to the doctors at the rate of $12,500 for full-time service. A group of twenty-five physicians is sufficient to meet the needs of 20,000 unselected enrollees.

For exceptional procedures such as brain surgery, fenestration surgery for deafness, and operations for congenital heart disease, the groups reinsure themselves through a special fund, which engages some of the best surgeons in the city for the care of these patients and thereby relieves the groups of such unusual and unpredictable responsibilities and expenses. The cost of radium and radon is also met by this fund.

Official—Voluntary Cooperation

This demonstration of comprehensive prepaid medical care is a conspicuous example of the successful collaboration of official and voluntary forces in the local community. It grew out of the deep interest and imaginative foresight of Mayor La Guardia and his successor, Mayor O'Dwyer, supported by a group of like-minded officials and citizens. These included Commissioner William Reid, first as Collector for the City of New York, and later head of the Transit Commission and Deputy Mayor; David M. Heyman, now Chairman of the Board of Directors of HIP; Dr. George Baehr, now HIP's President and Medical Director, together with representatives of civic and business groups and organized labor. Eighty persons signed the certificate of in-

corporation. Following incorporation (1944), Albert Pleydell, then Commissioner of Purchase for New York City, became General Manager, and Dr. Dean A. Clark, the first Medical Director. Mr. Francis Bloustein, Mayor La Guardia's law secretary, and now a Planning Commissioner, served as the legal adviser and steered the organization through the mazes of corporation law relating to the provision of medical services. HIP's present board of directors of 30 persons includes 10 distinguished physicians and 20 representative citizens. This proportion of professional and lay representation is stipulated in the by-laws.

Enabling Legislation Needed

Before the city officials could enter into contract with HIP, enabling legislation had to be passed permitting municipalities in the state to contribute toward the payment of employees' premiums for insurance of this type. The state laws relating to the practice of medicine had to be amended to permit practice by medical partnerships.

Almost four years (1943-1947) were required to devise the Plan, remove legal and other obstacles standing in its way, and create the needed medical groups. It is generally believed that only a union of official and voluntary forces could have accomplished this. It is also generally recognized that the immediate prospect of a very substantial enrollment strongly motivated the extensive organization of medical groups and that the attainment of self-support for the Plan in so brief a period after it began operation was due to the city contract.

Initial financing was forthcoming from the New York Foundation, the Rockefeller Foundation, and from Albert and Mary Lasker. The Plan is now not only paying its way, but is also returning those advances.

All of the responsible forces connected with the Plan believe that its future is assured only if the quality of the care given enrollees is maintained at a level that compares favorably with the best in the community. The basic requirement of integrated medical group practice is itself a powerful guarantee of quality, especially when it is combined with general supervision of a standard-making and enforcing body such as the HIP Medical Control Board. So far both the special studies of the quality of care and the reactions from subscribers have been highly reassuring. Currently, there are only two or three complaints per month per 10,000 enrollees, although all subscribers are fully advised that the central office will be glad to look into any question which they may wish to raise.

As of July 31, HIP had a total of 251,328 enrollees from all sources. All of the municipal departments are represented except the Police Department. This department has had a system of medical services for its employees which has complicated the issues with regard to enrollment in HIP. It is expected, however, that these issues will be clarified shortly. The staff of the United Nations has been covered since 1947 together with family members. Other contractors include several labor unions, many social and civic agencies, and more than 150 businesses, the largest of which is the Title Guarantee and Trust Company, with 750 employees covered.

The history of the HIP, though fairly brief, is a many-faceted story with factors and forces of many kinds, legal and professional, operating to complicate the details. A new congeries of social relations had to be shaped and many new techniques developed. The administrators of HIP look upon this experience as having values quite beyond its own operation, and see no reason to doubt that the models here developed could be used in the interest of the employees of other municipalities. They are, therefore, more than willing to supply materials which analyze and describe the experience to date and to answer questions. Inquiries should be addressed to the office of the Executive Vice-President, the Health Insurance Plan of Greater New York, 425 Avenue of the Americas, New York 11, N. Y. They may also be sent to the Cooperative Health Federation of America, 343 South Dearborn St., Chicago 4, Ill.

Berkeley Gets New "Bargain" Recreation Center

A NEW "bargain" recreation building was dedicated in Berkeley, Calif., on September 11 as a cooperative project, involving both the city and the schools, working with the Recreation Commission. Including contractor's bid and extras, architect's fees and equipment, the building, covering an area of approximately 10,000 square feet, cost $75,000. Charles W. Davis, Berkeley Director of Recreation and Parks, reports that the contractor's price for the structure worked out to about $5.75 a square foot.

The building is located on school property, which is leased by the city at a dollar a year. A special committee with members from the City Council, the School Board, and the Recreation Commission worked out the plan by which the school furnished the site, the city financed the construction, and both will use the building.

The building includes a gymnasium 60 by 96 feet; locker and shower rooms and toilet facilities for men and women, and special toilet facilities for preschool children; two classrooms for preschool children; three clubrooms with a snack bar in one of them; offices for the Community Center Director and the School Director, and storage space for recreation equipment and children's school supplies. The rooms are well heated and lighted, and attractively painted and decorated in light, modern style.

Folding bleachers, seating 240 people, are against the south wall of the gymnasium. Also included are chairs to seat 200; basketball backstops; gym mats; a punching-bag stand; table tennis equipment; folding tables for dinner parties; a snack bar with gas range, sink, tables, chairs, and juke box. The clubrooms, with attractive window curtains, are equipped with donated furniture and piano.

Gas-Burning Diesel Cuts Power Costs 50%

Elkhorn, Wis., municipal electric system installs dual-fuel engine and uses natural gas to reduce power costs and increase reliability of power generation

By A. J. WOLFF
Superintendent
Elkhorn Light and Water Commission
Elkhorn, Wis.

THE purchase of a dual-fuel diesel engine by the Elkhorn Light & Water Commission in 1948 was an innovation in the municipal power field. To some it may seem unusual to use natural gas as the main fuel supply when the source is hundreds of miles away. Wisconsin is not generally looked upon as a field for diesel engines of the larger size arranged for gas-burning, yet here at Elkhorn is evidence that an engine of this type has definite advantages. We believe that this is the only gas-burning diesel in Wisconsin.

When the power plant was originally constructed, the Commission intended to install diesel generating equipment, but this plan failed to materialize. At that time the municipality maintained only a distributing system, purchasing its power requirements from an outside utility system. Until the present diesel was installed, the building housed the distributing switchboard; two motor-driven pumps of the city water system; a single-cylinder 50-hp Fairbanks-Morse variable-speed diesel belted to a centrifugal pump which served as stand-by; a work shop, and garage space. In 1940, a plan was again considered to install three 900-hp diesels to take over the entire load, but this also was never carried through.

Natural Gas Comes to Elkhorn

When natural gas became available in Elkhorn, consideration was given to the installation of a diesel that not only would burn this low-cost fuel, but would also burn diesel oil should there be times when gas was not available. This led to the purchase of a Nordberg Duafuel engine in March 1948. This Nordberg engine is a four-cycle, six-cylinder, supercharged unit with a 16-inch bore and 22-inch stroke; it drives a 875-kw, 2400/4160-volt, 3-phase, 60-cycle, Elliott generator with a 15-kw V-belt exciter. Being of the Duafuel type, it operates as a diesel on either gas or oil fuels. The change from one to the other can be made instantly by rotating the control wheel at the end of the engine. Normally the engine burns gas, but the contract with the gas company is such that, during periods of extreme cold weather when there is a shortage of gas, it may be necessary to switch the engine to oil fuel. The plant is given about an hour's notice when a changeover is required. During the winter of 1949-1950, the total time that the engine was off the gas line was only 20 hours, the longest single period being 6 hours.

Since the engine did not have sufficient capacity to carry the entire city load, it was intended to operate it in parallel with the utility-company system. This would accomplish two purposes. One, it would smooth out the peaks of the city service, thereby lowering the demand charge and reducing the over-all rate of purchased power. Two, it would provide some standby service in case of a failure of high line service. The engine is held at virtually full load capacity with unity power factor from 7 a.m. to 10 p.m. six days a week. During this period, only the demand in excess of the load carried on the engine is supplied by the utility system, which also carries all the city load when the engine is not in service.

The accompanying table for the first four months of 1950 shows the comparative costs of gas-burning diesel-generated power and purchased power. Since the engine operates on constant load, there is little difference from month to month of the expense items that enter into the cost of generation.

The figures show that the engine is delivering one kw-hr. per 9.77 cubic feet of natural gas and has a lube-oil consumption of 4,301 kw-hrs. per gallon. Including cost items of gas, pilot, and fuel oil, lube oil, labor and maintenance, the kw-hr. hour cost is .603 cents as compared with 1.25 cents for purchased power. During this period, the only expense for maintenance was the renewal of filter elements of the oil purifier, which are replaced periodically. During these four months, the engine operated for a total of 1,537 hours, which with the 1,354,922 kw-hrs. generated shows the engine was carrying an average load of 881 kw. This means that the engine was slightly beyond its full load rating of 875 kw.

For the month of March it will be noted that the amount of pilot and fuel oil was much higher than for either of the other three months. This was occasioned by cold weather when the engine had to go from gas to oil fuel on several instances.

The plant is favorably located adjacent to the main of the Wisconsin Southern Gas Company. A 4-inch line carrying gas at 50-55 pounds' pressure goes to the gas company's regulators, where the pressure is reduced to about 14 pounds. After passing through two American Gas meters arranged in parallel, the gas is again piped outside the building to a scrubber, which also serves as a combined reservoir and surge tank.

Oil used for pilot fuel, and for regular operation when gas is not available, is delivered by tank car to a siding which runs through the rear of the plant property. There are two storage tanks having capacities of 15,300 and 27,500 gallons with unloading facilities

COMPARISON OF COST OF GAS-BURNING, DIESEL-GENERATED POWER AND PURCHASED POWER

Month Engine hrs.	Kw-Hrs. generated	Gas cu. ft.	Cost of gas	Pilot fuel oil, gals.	Fuel oil cost	Lube oil gal.	Lube oil cost	Labor	Maintenance	Kw-hrs. purchased	Cost of purchased power	Month Engine hours
Jan. 365	365,940	3,414,000	$1,594.40	774	$84.96	74	$38.88	$410.00	.....	429,600	$5,370.00	Jan. 365
Feb. 391	344,600	3,465,000	1,465.70	903	99.33	74	38.88	410.00	$40.00	459,200	5,270.40	Feb. 391
Mar. 390	345,440	3,607,000	1,590.30	4,751	302.61	91	49.14	410.00	.....	360,000	4,608.00	Mar. 390
Apr. 391	348,940	3,373,000	1,594.80	929	102.19	80	45.20	410.00	.....	355,200	4,311.04	Apr. 391
Total 1,537	1,354,922	13,861,000	$5,741.20	3,555	$589.05	315	$170.10	$1,640.00	$40.00	1,584,000	$19,759.44	1,537

consisting of a Viking Type ZL transfer pump driven by a 3-hp Master motor.

Oil from the storage tanks flows by gravity through a Trident filter and a Trident meter, and then to the built-in fuel-transfer pump on the engine which delivers oil to the fuel header. There is also an overhead day tank of 300-gallon capacity to which fuel can be transferred by a Roper 26F3, 3-gpm, 40-psi-head pump driven by a ¼-hp General Electric motor and which is located in the pit adjacent to the engine.

Rarely Burns Oil

With the small amount of oil fuel used as pilot fuel when the engine is burning gas, and since the engine burns oil only on rare occasions during winter, it has been found advisable to use a quality fuel oil. For this purpose, Lockwood's lubricated diesel oil, a clear, light-weight oil, is being used. While the cost is but little more than fuels normally used for an engine of this type, the advantages more than outweigh any difference in cost, especially since so little oil fuel is used. The higher cost would have little effect on the over-all cost of generation.

The cylinders are lubricated by a 12-feed Manzel force-feed lubricator mounted at the control end of the engine. Bearings and other details requiring lubrication are cared for by the circulating pressure system and supplied from a built-in gear-driven pump located on the operating side of the engine adjacent to the flywheel. Oil from the various parts lubricated returns to the sump in the bedplate. The pump takes its suction from the sump and forces the oil through a Nordberg duplex strainer and a Ross 1206-CP lube-oil cooler with a capacity of 550,000 Btu per hour, and then to the lube-oil header on the engine for recirculation. A Hilco purifier operates continuously, taking oil from the sump. After being purified, the oil is returned to the sump supply. This purifier has a capacity of about 2 gpm.

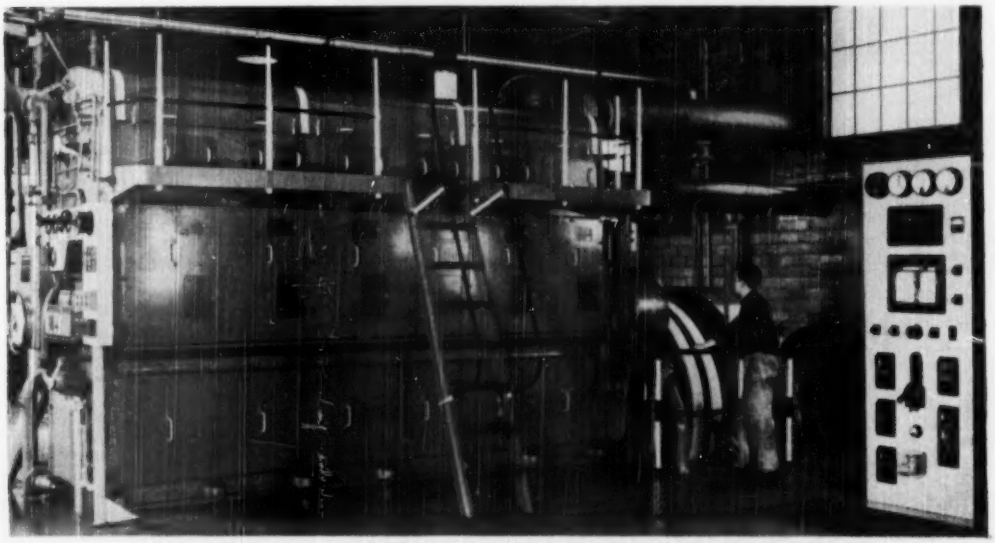
There is also an auxiliary lube-oil pump to serve as an emergency should there be a failure of the built-in pump. It is also used as a before-and-after lubricating pump.

One noticeable advantage in the use of gas fuel is the lack of contamination and the long life of the lubricating oil. After the engine had seen 2,175 hours of operation, a sample of the oil, Ursa P-30, was sent back to the Texas Company for analysis. It was found that there had been no change in the oil since the engine was placed in service except for a minor difference in viscosity, which could readily be remedied. With the method used for purification, it is believed that the oil will last indefinitely. Over a 4-month operating period, the engine showed a lube-oil consumption of 4,301 kw-hrs. per gallon. While this good showing in lube-oil consumption has a definite bearing on the production cost of kw-hrs., it has a further advantage that cannot be so readily noted. This is the minimizing of wear to bearings and working parts attributed to clean oil. Lessened wear means lower maintenance expense and longer engine life.

Water for Elkhorn is obtained from deep wells, which are also the source of cooling water supply for the engine. Raw water is taken from one of the wells and is discharged into a 275-gallon tank located just above the floor and back of the engine. At the outlet of this tank is a Y connector, one branch going to the lube-oil cooler, the other to the Allis-Chalmers Electrifugal raw-water pump of 300-gpm capacity at 90-foot head and driven by a 15-hp motor. This group discharges through a Ross 1006-CP heat exchanger which has a capacity of 1,710,000 Btu per hour. After passing through the heat exchanger, the water is carried to an old well and returned to the ground supply. All city water is treated and consequently soft water is available for the engine jackets. This water is circulated by an Allis-Chalmers Electrifugal pump of 300-gpm capacity at 70-foot head and driven by a 10-hp motor. In this circuit is an overhead surge tank of 50-gallon capacity.

The plant at Elkhorn is exceptionally quiet in operation due to effective silencing. A concrete structure houses the American Type 5-OCH air filter on the suction line, while a Burgess-Manning Type STL-16 snubber quiets the exhaust.

While the diesel engine generates less than half the city's requirements, the savings being made definitely prove that the installation is a good investment and that greater savings would be possible if the entire city load could be carried by diesel engines. As changes and improvements are being made, all are a part of a long-range plan of a future expansion program of the city's utilities.



Elkhorn's dual-fuel engine requires only the turning of a hand-wheel to change from natural gas to diesel oil.

MPR Municipal Public Relations

The City Tells Its Story

By HENRY DAVIS NADIG

Executive Director, Association of Municipal Public Relations Officers

Comics as an MPR medium: can they do a job for your city?

SO FAR as I know, as yet no city has come forward with real honest-to-goodness use of comics as a means of telling the city's story or any part of it.

Some cities have dabbled in the comics technique sporadically and for specific illustrative purposes. (Norfolk had an interesting display employing a few cartoon panels at the recent International Conference on Assessment Administration in Atlantic City.) Now and then other cities have pulled in cartoons or panels or spots in exhibits and leaflets.

But has any city gone full swing into this medium—with a comic book on a specific department or problem or with a comic-book annual report?

It is time that we took a realistic look at the comics medium and see what it has to offer in the way of putting the municipal story over to the people. To do this, let's leap back and then bring ourselves up to date.

The picture strip originated ages ago when the first graphic hieroglyphics were chiseled into stone on the walls of caves and tombs to depict the activities of ancients and their leaders. That was some 20,000 years ago. Later temples and early municipal buildings bore their share of pictorial panels in stone. Even the stained-glass windows of churches in the Middle Ages served more than a decorative purpose: they recounted stories from the Bible.

Portraying a story in pictures, with very few words—and doing so with a bit of exaggeration for effect, with sharpness for attention and with subtlety for putting over a point, with color and rhythm for eye appeal and interest—is not new.

But it has remained for this century of ours to bring into practical usage for modern times—for modern audiences—a vivid and thoroughly popular adaptation of the picture-writing form of the ancients: the comic strip and the comic book.

Comics have come to be such a potent influence that they have caused considerable concern among educators—to the point where not a little has been written and spoken on the pros and cons of comics as proper fare for popular—and particularly juvenile—consumption.

The debate has been a healthful one and one that brought out at least two things: (1) steady improvement in types of comics, and (2) the fact that, whether or not some of the people like it, comics are here to stay—and for a long, long time, until the next progressive step in picture writing develops.

Why not accept these facts, then, and look into the possibilities of comics as a municipal public-relations medium—perhaps even the most influential type of medium that could be utilized?

Let's be basic. What is a comic book?

In anywhere from four to twenty or more pages, a comic book dramatizes in color a story (truth or fiction) or theme through a series of pictorial action panels (scenes) accompanied by the fewest possible words of narration, exposition, description, and dialogue.

Comics are popular because they are easy to read. And they're just as easy for adults to read as for children! The word "comics" as applied to our present-day popular picture writing is a misnomer, of course. Only a few are really comic and some are quite tragic. A new name for the medium will pop up one of these days.

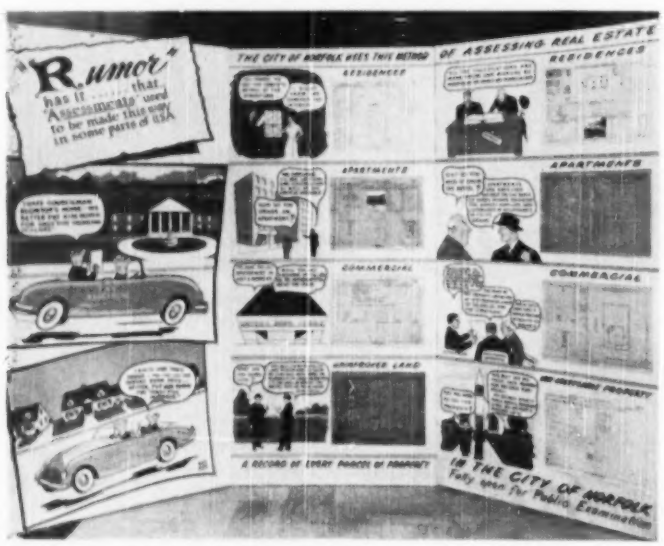
Comics—pervading the population, in evidence everywhere—do a real job of *communicating*—and they do it *with the least amount of reader resistance.*

What are some precedents in today's world which might lead us to think that municipal government may be missing a bet by not going in for comics to tell the city's story?

Use by Army

Uncle Sam, for one, has for some time now recognized the power and the practicality of this medium. He used it in Army training courses in World War II and he is using it today. Recent examples: *Time of Decision*, a 16-pager promoting interest in the R.O.T.C.; *Military Courtesy*, a 20-pager dramatizing the simple rules of courtesy in uniform. These and other special-information comics are being developed by the Information Comics Division of Harvey Publications, Inc., New York.

The State Department has also gone


Rumor has it ..... that "ASSESSMENTS" need to be made this way in some parts of U.S.A.
THE CITY OF NORFOLK USES THIS METHOD OF ASSESSING REAL ESTATE
RESIDENCES
APARTMENTS
COMMERCIAL
A RECORD OF EVERY PARCEL OF PROPERTY
IN THE CITY OF NORFOLK
Today upon The Public Examination

The City of Norfolk's exhibit at the 16th Conference on Assessment Administration shows how Norfolk employed the cartoon technique to communicate.

in for the comics medium. Other Federal Government departments may be expected to follow suit.

A notable example of comics use on the state level is the "Blondie" book (20 pages) recently produced by the New York State Department of Mental Hygiene. It presents this favorite character of the comics in several episodes to bring into sharp focus the basic elements of good mental health.

Closer to municipal government is the comic book on fire safety and control put out last July by the National Fire Protection Association. In 16 pages of dramatic episodes, the NFPA stirringly and humanly has pointed up the salient factors of fire safety and control.

The impact of this comic book is indicative of the power of the comics medium. Melvin R. Freeman, public-relations manager of the NFPA and member of the governing board of AMPRO, says that his association has had "phenomenal" response to the comic book, which is believed to be the first ever devoted to the subject of fire control.

"The comic book was an instant success," Mel says. He reports that General Motors bought 185,000 copies for the Information Service Rack in all its plants. It is being used as a text in Conyers High School, Atlanta, Ga.

Incidentally, another AMPRO member, Ridley T. Nichol, of the Norfolk city government, had a hand in production of that cartoon exhibit which the Assessors Department set up at Atlantic City.

Again, close to the heart of municipal government: through the courtesy of Ham Fisher, his creator, and Al Harvey, of Harvey Comics, Joe Palooka has been used by the Superior Coach Corporation of Lima, Ohio, in a small open-end booklet to promote school-bus safety. It's called *Joe Palooka School Bus Safety Tips*, and has been widely distributed by the transportation company which sponsored it.

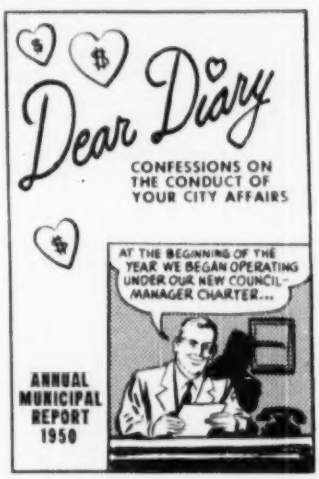
At Close Range

Municipal government is at close range to the people. Each local government is close to the lives and the homes of its citizens. Yet far and wide across the country, we know—are beginning more and more to realize—that the people don't really know enough about their own local-government affairs. In the heart—the many hearts—of our democracy, we are failing to communicate, to achieve a sound, practical rapport between municipal government and its peoples.

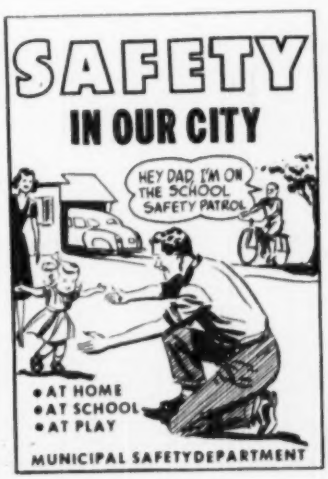
This is a tragic fault of our times. And while it can't all be laid at one doorstep, cannot all be said to be the fault of any one group of individuals or type of governmental procedure, there is a real challenge to municipal government to open up with the people, to go more than halfway to inform them, to communicate with the people and to make this communication work both ways.

To municipal government the comics medium may offer the most direct, the simplest, the most effective, and the most humanizing way of reaching into the hearts and homes of the local publics. It may also present one of the best methods of informing and educating the citizen of tomorrow to his coming responsibility in the maintenance of local democratic self-government.

How, then, can this be handled? Just what are the possibilities in your


Dear Diary
CONFESSIONS ON THE CONDUCT OF YOUR CITY AFFAIRS
AT THE BEGINNING OF THE YEAR WE BEGAN OPERATING UNDER OUR NEW COUNCIL-MANAGER CHARTER...
ANNUAL MUNICIPAL REPORT 1950

Illustrated here are proposed themes and treatment of some municipal subjects that lend themselves well to the comics medium.



city government for use of the comics medium? How can you go about capitalizing upon comics if you do decide to step forth with this technique?

The opportunities seem almost limitless. In the first place, each department of your government has a real story to tell—a story that has not yet been adequately told nor effectively presented to your public. For, whatever media you have been using, there is still room for repeat performances in these and other media.

Some Obvious Material

Most obvious (and easiest) to start with, as a general rule, might be the police and fire departments. Dramatization of police and fire operations might even be combined in a single comic book. The wealth of human-interest material, involving the activities of police and fire departments, is apparent, needs no delineation here.

Health, public works, water works, sanitation, tax, park, planning, recreation, school departments—each has its own special qualities, features, highlights which readily could be covered by a skilled approach in the comics medium.

A whole comic book could well be devoted to safety in its various phases. The opportunities in this one subject hold interest—personal interest—for all citizens. Action, color, and characterization can combine to gain and hold attention of the reader.

The mayor and council and/or the city manager's office offer ample facts and portrayable details for still another complete comic book. Not enough is known by the average citizen of the day-to-day routine, the ups and downs, the trials and triumphs of the top management arm of local government. A comics book could transmit this operation to the public with a human touch unattainable by any other medium.

Then there is the annual municipal report. What an opportunity it presents to take a typical local character or even a typical local family through the what-why-when-how-where-who of local government! Such a production could be so well handled that its influence would be tremendous in the improvement of municipal-government operation and active citizen interest in official city affairs.

Are we interested in the advancement of city government and a greater public understanding of it, in broader and more fruitful citizen participation, in higher public regard for office, in fuller civic cooperation?

Then we must communicate. We must inspire confidence, we must cooperate, we must follow through. We must do a better job in all four of these compelling public-relations forces.

The comics medium today is the most potentially influential channel of mass communication. Like the picture writing of the ancients, it presents characters (and their activities) readily accepted because of their lifelike, human qualities depicted and made to speak through a form or pattern basic to the development of mankind's civilization.

Let's make comics work for municipal government!

Growing interest by public agencies is being shown in comics as an educational medium. Some recent examples of such comics are shown here.

The Challenge To City Government *

THE remaining islands of real poverty in America are a challenge; so are our congested and debt-laden cities, which become more expensive to run, and offer their inhabitants a more unnatural and nerve-racking life, as they lure more and more people to enjoy their glitter; so is the failure, thus far, of most Americans to get any chance to savor the joy of work done under agreeable conditions for a satisfying purpose. The best of our factories, today, are things of a new and lively beauty; the worst—which include most of the older ones—are still in essence "dark, Satanic mills."

Those villages of 1850 were mighty pretty, with their lawns reaching to the river. I see no reason why—if we keep our wits about us—American communities of 2000 and 2050 should not be just as satisfying to the eye; far cleaner, more convenient, more comfortable; far prouder as residences for even the least fortunate man, woman and child who live in them, and more favorable as seed-beds to the human spirit.

* From "The Big Change," by Frederick Lewis Allen, in the October 1950 Centennial Issue of *Harper's Magazine*.

Lansing's Mechanical Hand

New power shovel works at wide range of loading tasks from catch-basin excavation to snow removal

By GLENN P. MANZ
Director of Public Service and City Engineer
Lansing, Mich.

IN most municipalities, it seems there is always more work to be done than there is time to do it. During World War II, with its shortage of labor, the use of mechanical equipment became absolutely necessary in order to maintain even the minimum of municipal facilities. During the period since the war many new ideas have been developed which make it possible to do more work with greater efficiency than had been possible previously.

Lansing is situated in an area where the heating of homes with natural gas is relatively new. In order to supply an increased demand, gas pressures have been raised, causing an unprecedented number of leaks at joints in the mains. In order to stop these leaks, the local gas company has had to open the pavement over each joint in miles of mains. As a result the Department of Public Service of the City found itself faced with the problem of repairing the pavement cuts, together with others.

For many years it has been common practice in this community for the city to maintain and repair all utility cuts made in the paved streets. After a cut has been made it is backfilled with sand, the opening is surfaced with a light asphalt paving mix, and any settlement is compensated for by adding more material. After the backfilled trench has compacted to the point where no further settlement is evident, it is ready for final repair. This necessitates the removal of approximately 10 inches of material at the top of the trench. Often this top 10 inches is entirely bituminous material and is very difficult and expensive to remove. It was this experience which led us to search for some better method of excavating than the use of picks, shovels, air compressors and back-breaking labor.

Does Work of 30 Men

We were able to rent, in 1949, a power excavating machine called the Gradall. This machine is hydraulically operated, and to my knowledge is the only excavating machine which incorporates in its design the ability to revolve in a horizontal plane, with a boom that can duplicate the movements of a human arm and hand, except those calling for the use of an elbow. In performing this one operation we have found that the machine will do the work of 30 men using air hammers and picks and shovels.

In excavating for the construction of catch-basins, our cost per basin has been reduced over 80%. The excavation for the leads can also be made with the same machine.

The convenience of the Gradall is its versatility. Ours is mounted on a tailor-made truck chassis manufactured by the Duplex Truck Company, a Lansing manufacturer. Being truck-mounted, it is easily and quickly moved from job to job; with its numerous types of buckets and attachments, it is ready on a few minutes' notice to do a variety of operations. By the use of a special attachment it can be efficiently used in the removal of bituminous surfacing. Normally this is slow, tedious, and expensive work, but can be done quickly, and at a quarter the cost of hand removal, when this machine is used.

Among the various attachments which are available is a snow bucket. This is particularly handy for loading snow from bus-loading zones and intersections.

Roadside ditching is another operation taken in stride by the Gradall. Grading of fill or cut slopes is easily done by the use of a blade attachment, resulting in a job perfectly done.

We have found so many uses for the machine that we wish we had two of them. It has been a tremendous step forward in stabilizing our labor problems.

Lansing's new Gradall removes material causing frost heaves in the pavement.

On another task, it tears out a layer of asphalt.

Excavation for a new catch basin by a Gradall machine.

Soil-Cement Paving convinces Jackson, Mississippi—

experimental paving works well, even with plastic soil

PHOTOS COURTESY OF PORTLAND CEMENT ASSOCIATION

Houston Avenue in Jackson, Miss., being paved with soil-cement. Three stages of construction are shown—new curb and gutter in place, grading under way in foreground, and soil-cement processing in the background.

Drive and parking area are of soil-cement in Riverside Park, Jackson, Miss. This project was completed in 1949.

By E. T. THOMAS
Assistant City Engineer
Jackson, Miss.

IT WAS NOT until 1948 that we were first convinced that soil-cement paving held some possibilities in our city. We were looking, of course, for something that would improve the quality of residential paving and also reduce the cost of the surfacing to the property owners.

We have made a number of inspection trips to other states and cities in order to find out at first hand the problems to be encountered and the results obtained. After having been convinced that soil-cement paving was satisfactory in other areas, we decided to include it as an alternate in a small residential street-paving project. We realized that conditions in Jackson would not be compared to conditions in other cities because of the unusual soil conditions. Much of the soil found here in the subgrade of the street pavement is listed under the classification of A-6 and A-7 plastic, according to U. S. Bureau of Public Roads standards.

Regardless of this handicap, we proceeded on an experimental basis on one street and on several driveways inside city parks. Approximately 12,400 square yards of soil-cement stabilization was constructed at that time, using double bituminous surface treatment on a portion of this work and a combination of surface treatment and hot-plant-mix wearing surface on the rest.

This work proved so entirely satisfactory that the following year we awarded a contract to the Delta Paving Company for the construction of approximately 30,000 square yards of additional soil-cement paving. We had several bidders for the work and received bids both on soil-cement and alternate types of pavement. The nearest competitive alternate design was an 8-inch compacted clay-gravel base course specifying the same bituminous face as that used for the soil-cement work. The surface specified was a double bituminous treatment, or mat course, sealed with a one-inch hot asphaltic-plant mix.

Another project contracted was in March of this year, at which time a contract was awarded to two companies jointly for the construction of approximately 54,000 square yards of soil-cement stabilization on residential streets. The bituminous surface on this work was the same as described above. A contract awarded just recently was for the construction of approximately 73,000 square yards of street paving in which soil-cement stabilization was included as an alternate along with an 8-inch compacted clay-gravel base course and a combination clay-gravel and selected sand-clay topping material. Interestingly enough, the alternate of soil-cement was lower in cost and consequently was accepted. This will give us a direct comparison of quality, and of course it is always healthy to offer contractors proposals that give them a wide range of bidding possibilities.

Used on All Types of Streets

We have used soil-cement on streets varying from 22-foot park drives to 60-foot, four-lane traffic arteries. All of the bases have been built to a 6-inch compacted thickness. The amount of cement varies slightly with changes in soil classification, but runs mostly between 11% and 14% by volume. The amount of water also varies, but we find that optimum moisture for the different soils ranges between 12% and 16%.

Our specifications call for a density of laboratory sample between 110 and 118 pounds per cubic foot; we attempt to achieve 95% of this value on the compacted base. Our specifications also call for the use of an asphalt emulsion to be applied as a curing agent immediately after completion of the soil-cement work. We are thoroughly pleased with the results obtained from this method of curing.

We have not encountered any serious difficulty in the construction of soil-cement work; and although we do not yet know what the ultimate life of this paving will be, we are at the present time highly satisfied with the results. All of our work has been done by experienced contractors, all of whom have used a P & H Single Pass stabilizing machine. Cement was applied by a mechanical bulk-cement spreader, and the base was compacted by a combination of sheep's-foot rollers, steel-wheel tandem rollers and wobbie-wheel rubber-tired rollers.

Sometimes, in order to improve the condition of the soil, contractors have arranged to leave a portion of the existing gravel or other material on the street to be incorporated into the new work, but we have made no special effort in this direction and have not yet experienced any failures due to the classification of the soils encountered.

GOVERNMENT CONSULTING SERVICE
Institute of Local and State Government
University of Pennsylvania, Philadelphia, Pa.*

Social Security

Reaches the Municipality

IN AUGUST, the Social Security Law was amended to provide nation-wide Old-Age and Survivors Insurance for local-government employees. The retirement benefits are attractively high and provide protection for the entire family. The amendment does not extend benefits automatically, however. Each state must sign an agreement with the Federal Government to bring its local-government employees into the program. It appears, from the wording of the act, that the agreement must include or exclude all employees of the state's political subdivisions as a group—that is, the state cannot extend coverage to employees of counties and withhold it from the employees of cities, or vice versa. The only exception is the separate inclusion or exclusion of persons employed in the "proprietary" functions of local government, such as water and electric utilities.

When a state signs an agreement with the Federal Government, all of the municipalities in the covered group become a part of the Old Age and Survivors Insurance system. It is unlikely that a state can grant a municipality the right to accept or reject membership for itself. This important point may be clarified later by official interpretation of the legislation or by administrative regulation.

Employees who are members of an existing retirement system when the state-federal agreement becomes effective cannot participate in the Old Age Insurance program. The law does not prohibit groups from joining other retirement systems *after* they have been covered into the federal system.

The state is considered to be the "employer" of all governmental employees who are covered by an agreement, and will be responsible to the Federal Government for the collection and payment of the employer and employee contributions to the Old Age and Survivors Insurance fund. Before signing an agreement, therefore, the state must establish some method by which monthly tax payments will be collected and forwarded to the Federal Government. Since this will probably require legislative action by the state, as well as the establishment of a sizeable administrative organization, there may be substantial delays before most local-government employees participate in the program.

Governments and Employees Contribute Alike

The government unit and the employee contribute equal amounts to the Old Age and Survivors Insurance Fund. Payments are based upon monthly wages, and the rate of payment is as follows:

Years	*Percent of Wages*
1950 - 1953	1½%
1954 - 1959	2 %
1960 - 1964	2½%
1965 - 1969	3 %
1970 and after	3¼%

If the monthly wage of an employee is more than $300, the rate is applied to $300 only.

The rate of payments in this system is the same for everyone, regardless of age. Most of the state or municipal retirement systems on an actuarial basis fix the rate of contribution by the age of each individual at the time he joins. Consequently, older men pay more than younger men. The Federal Old Age and Survivors Insurance program also differs from many state and municipal retirement plans by disregarding the problem of "prior service" credits. The cost of financing prior service has been an important element in defeating retirement proposals in many municipalities.

An insured person may retire at the age of 65 provided that he has been a member of the federal program for a minimum of 18 months. Benefits are based upon his average monthly wages during the period of coverage, regardless of his length of service or length of membership in the program. In other words, an employee who is 63 years old when his municipality joins the Old-Age Insurance system can retire two years later with full benefits. By comparison, many state and municipal retirement systems fix an individual's pension by multiplying some fraction of his average pay by the number of years of his membersip in the retirement plan. This procedure results in relatively small pensions for the men who are close to retirement age when the system is adopted.

The wife of a man receiving Old Age and Survivors benefits becomes eligible for an additional benefit when she reaches 65. The wife's benefit is one-half of her husband's. If the husband dies, his wife's compensation is increased to three-quarters of the amount her husband received. For each dependent child under the age of 18, the parents are entitled to an additional amount equal to one-half of the insured person's benefit. When an insured person dies, his beneficiary receives a lump-sum death payment equal to three times the insured's monthly benefit.

Old-Age and Survivors Insurance

SAMPLE BENEFITS UNDER THE FEDERAL OLD-AGE AND SURVIVORS' INSURANCE PROGRAM

	A		*B*		*C*	
	Per Month	*Per Year*	*Per Month*	*Per Year*	*Per Month*	*Per Year*
Average earnings	$175	$2,100	$225	$2,700	$300	$3,600
Insured's benefit	61.25	735.00	68.75	825.00	80	960
Wife's benefit	30.63	367.50	34.38	412.50	40	480
Total	91.88	1,102.50	103.13	1,237.50	120	1,440
Child's benefit	30.63	367.50	34.38	412.50	40	480
Total	122.51	1,470.00	137.51	1,650.00	150 *	1,800 *

* Maximum allowable benefit.

*This article was prepared by Morton Lustig, staff member of the Government Consulting Service.

benefits will be computed for most of the municipal employees by using the following formula:

> 50% of the first $100 of average monthly pay, plus 15% of the next $200 of average monthly pay.

By weighting the first $100 of earnings so heavily, the formula provides relatively high pensions for the lower-income personnel. For example, if one man's average monthly earnings are $100, and a second man's average earnings are $200, the first man would receive benefits of $50 a month (50% of $100), and the second would receive $65 a month (50% of $100 plus 15% of $100). The maximum benefit to any person, or to any family whose benefits are based upon one insured person's earnings, is $150 a month or 80% of the average monthly wage, whichever is lower. In computing benefits, earnings in excess of $300 a month, or $3,600 a year, will not be considered.

This program of old-age insurance offers security to thousands of local-government employees. It is a "going concern" in which millions of other American citizens have participated for 15 years. Although the administrative obstacles to participation by local-government employees are difficult, they can certainly be removed by the cooperative action of federal, state and local officials.

Corrective Steps by Industry May Save Costly Municipal Regulation

HELPFUL ideas by which industries may avoid costly and crippling regulations—born not of necessity but of ignorance and ill-will—are among the many practical suggestions offered by Louis B. Lundborg, Vice-President of the Bank of America, in his 1950 book, *Public Relations in the Local Community.**

Ill will [writes Mr. Lundborg] may be resentment against a particular practice or against a general company attitude, either of which could be corrected before the resentment reached such effective proportions.

Of one thing there is little doubt—that a regulation imposed by an unfriendly local agency will be more severe, more restrictive, and more costly than the corrective steps that the company might have taken in advance, or more costly than a milder regulation that might have been worked out in consultation between local agency and company.

There seems to be a tendency in head offices and legal departments of large corporations to think of local laws and ordinances as static—to think only of what the law permits today, and to act accordingly. That overlooks the fact that laws develop gradually out of conditions. A restrictive ordinance results usually from public resentment of a condition that has gone unregulated until it has become a public nuisance.

Stream Pollution and "Smog"

Thus, to assume that no provision need be made against stream pollution in the new branch town, just because the local ordinances there are silent on the matter, is to ask for trouble later when the community becomes aroused about the damage. The industry may be able successfully to resist ever doing anything about the pollution. For example, in one industrial area so many industries have grown up on one stream, and have grown so powerful, that their combined political force has been able to defeat all legislative efforts at abatement for nearly a generation.

Whether the direct cost of fighting the legislation over the years has been more or less than the proper corrective or preventive measures would have cost originally, only the companies themselves know; but there is little question that the companies have suffered loss of good will worth far more than the preventive measures would have cost.

The same is true of smoke, soot, dust, fumes, or odors given off by factories, mills, and plants. The problem of "smog" has become a major sore spot in the relations of industry and the community. Local ordinances now govern most of it in most places, but not all of it in all places. To the extent that they are not controlled, voluntarily or by force of law, such plant off-givings probably touch and annoy more people than any other single offense a company can commit.

Whether local regulation should be resisted, accepted, or made unnecessary by prior action may depend upon the circumstances of each case. What is certain is that every one and everything are potentially subjected to regulation; that close and constant attention must be paid to the desires, temper, and attitude of a community if only to be sure of having some choice in regard to a threatened regulation.

In explaining the core of his book, Mr. Lundborg says:

"Those who identify themselves with the community; who show their concern for the community's welfare; who make all their actions conform with the community interest; who show their friendly interest in the people of the community; who give a hand on community problems and try to make a positive contribution to community welfare—those will tend over a period of time to reap the rewards and benefits from what the community has to offer."

* Published under the sponsorship of the Public Relations Society of America by Harper & Brothers, New York, 1950. $3.

Postcard Billing in Richmond, Va.

CASHIER'S COUPON
PAYABLE AT
CITY OF RICHMOND
ROOM 109, CITY HALL
RICHMOND 19, VIRGINIA
OR AUTHORIZED STATIONS

CITY OF RICHMOND, VIRGINIA
BILL FOR
WATER AND GAS SERVICE

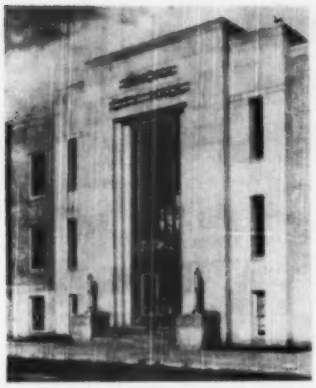
BILLING DATE	DISTRICT	DISTRICT	PAYABLE ON OR BEFORE
Aug. 30, 1949	28-7	28-7	Sep. 15, 1949

AMOUNT CODE	PERIOD ENDING	METER READINGS PREVIOUS	METER READINGS PRESENT	HUNDREDS OF CU. FT. USED	AMOUNT CODE
1.05 W	AUG 25	382	386	4	1.05 W
3.69 G	AUG 25	782	803	21	3.69 G
4.74 TOT					4.74 TOT

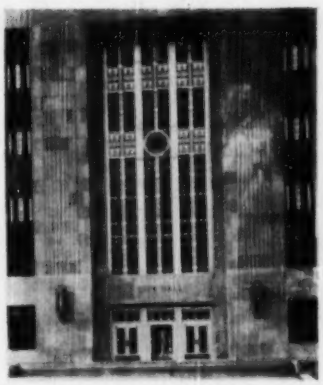
PLEASE ENCLOSE THIS COUPON WHEN PAYING BY MAIL

INCLUDES 5% UTILITY TAX IF WITHIN THE CITY
(TO DETERMINE AMOUNT OF TAX DIVIDE TOTAL BY 21)

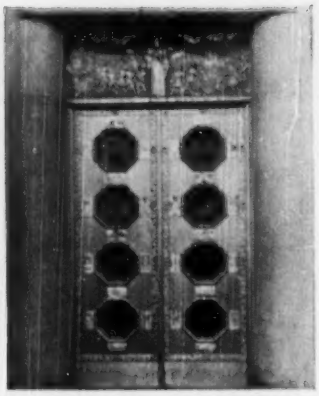
Gas and water are billed by postcard in Richmond, Va. Both services are billed on the card, as shown, where a consumer uses both water and gas. The Department of Public Utilities reads 90,000 meters and renders 65,000 bills. Bills are made by four Burroughs utility-billing machines, with one National utility-billing machine on order. There is also a proof machine that gives total consumption and money according to the different classes of consumption and rates. Receipting is done by these machines. As 99% pay in full or do not pay at all, posting is by rubber stamp. The cycle plan is employed for the 21 districts, a district a day.



Simplicity, authority and dignity are built into this entrance to the Winona, Minn., City Hall by use of aluminum.



Kansas City's municipal building, where aluminum is used freely, is often rated as one of the most beautiful in U. S.



When Jackson, Miss., built its War Memorial, it cast in its aluminum door the story of this city's war experiences.

Aluminum Wins Favor In Public Buildings

THE TREND toward use of aluminum for ornamental doors, spandrels, and other trim on public buildings has gained new impetus in the post-war years.

Aluminum doors in particular have the important characteristic of reflecting massive dignity while allowing the door to be light enough so that it can be opened easily. Their non-staining qualities even in the face of adverse weather conditions is also helpful.

Victoria, Texas, erected a war monument of white glazed brick in a city park to carry memorial plaques. Aluminum was chosen because it would not tarnish with neglect, and drip from the metal would not stain the brick.

Although of pre-war construction, the entrance to the Kansas City City Hall is still among the most impressive demonstrations of the metal's decorative possibilities. Winona, Minn., uses aluminum in simpler and less costly style for its City Hall front and entrance.

Impressive use of aluminum for a simple, ultra-modern entrance is demonstrated in the post-war Des Moines Art Center.

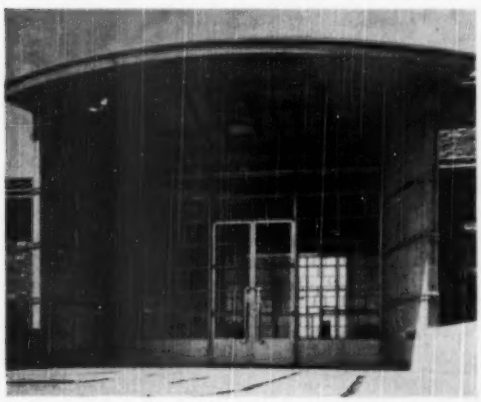
Aluminum for Airports

Although the Washington Municipal Airport at Washington, D. C., is the outstanding example of aluminum's use in such construction, the Hutchinson (Kans.) airport buildings, now nearing completion, show possibilities for smaller structures.

Municipal auditoriums at Topeka, Kans., and Little Rock, Ark., use the metal extensively on their entrances.

A use, entirely new to the Flour City Ornamental Iron Works, Minneapolis, Minn., one of the largest firms in the field, was the recent order of ornamental aluminum doors for the Crown Hill Cemetery Mausoleum in Indianapolis. The light weight of the doors, eliminating the need for a doorman to assist children and the aged, was a factor in its choice.

Among the most impressive of all the aluminum ornamental work is that on the doors of the Mississippi State War Memorial Building at Jackson, Miss. In a series of 26 panels, delicately wrought bas-reliefs outline the state's military history from the days of the tomahawk to the era of air-borne bombs.

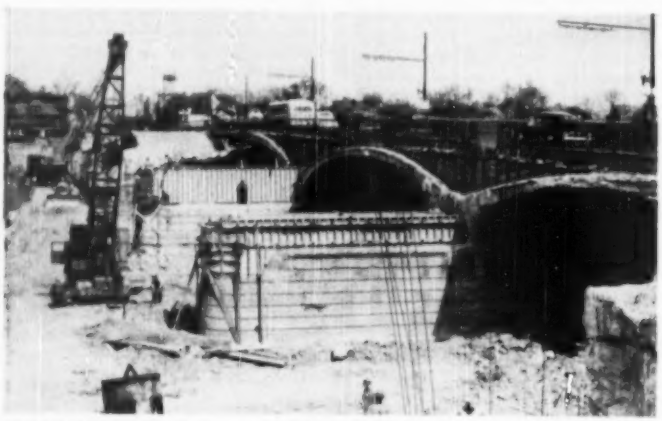


Imaginative use of aluminum and glass puts impressive distinction into the entrance of Des Moines' Art Center.

Clean, functional lines supplied by aluminum trim give grace and utility to this municipal auditorium in Topeka.

Dayton Rebuilds Arch Bridge

The Third Street bridge before rehabilitation. Note the wood balustrade sections where failure of spandrel wall and base needed temporary replacement.



North half of bridge is removed, with south half remaining. Note the exposed arch rib, making it possible to cut the bridge in half and maintain traffic.

How the north half of the bridge looks, now that it is completed.

Unusual original construction allows renewal of half the structure at a time, with steel girders in place of concrete arches

By KARL WODITSCH
Engineer of Structures
Department of Service and Buildings
Dayton, Ohio

ABOUT 45 years ago, Dayton, Ohio, built a multi-arch bridge to serve the Third Street traffic artery. After almost a half-century of service the arches began to give way, so last year the city undertook to rehabilitate the bridge by replacing the arches with steel girders.

The original construction was of a patented type that made it possible to remove half the bridge at a time, leaving the other half to be used by the street's normal traffic.

The bridge is 710 feet long, 72 feet wide, carrying two 26-foot roadways, one 4-foot median strip and two 8-foot walks. It has seven spans varying from 80 to 110 feet, and now uses continuous steel girders, 8 feet on centers. The girders carry a 7-inch reinforced concrete deck and a 3-inch bituminous surface course. The bridge is designed to carry a loading identified by the Ohio Department of Highways as S-20-46.

Unusual Split Construction

The original structure, because of its unusual construction, could be split lengthwise down the center with rock jacks, after provisions were made for two-way traffic on the south half of the bridge. This was made possible by utilizing part of the walk area as a temporary roadway, filling in the gutter adjacent to the walk with bituminous matter. The old arches were demolished by a 3,200-pound steel ball dropped by a crane. Piers and abutments were shaped by black powder charges to receive the upward extensions of reinforced concrete necessary for placing the steel girders.

The choice of steel girders over concrete reflects an upward cost trend of concrete bridges in the Ohio area. The city's decision to use steel was financially favorable since the state agreed to a 50-50 split in costs if the project were designed to state standards. The cost of the rehabilitation was approximately $1,150,000. The work was executed under the direct supervision of the Ohio Department of Highways.

ADMINISTRATION AND CONTROL OF

Municipal Licensing

By FRANK B. NIEDERSTADT*
City Clerk
Saginaw, Mich.

A LICENSE in simple terms is a formal permission to carry on a particular business; it is a privilege, not a property right, and this privilege may be exercised only so long as the holder complies with all of the required conditions.

The licensing ordinance is the starting point in the administration of licensing. The ordinance should set forth the various businesses, trades, and professions to be licensed, any restrictions which are to be imposed, the type and amount of insurance or bond (if any is required), and the schedule of fees to be charged. The ordinance may (charters permitting) provide for the making by administrative officers of rules and regulations which, when approved by the legislative body, have the same authority as the ordinance; provided, of course, they are not in conflict with the ordinance, the charter, or the Constitution. The license-fee schedule may provide for annual license fees or, in some categories, for a daily, weekly, monthly, and yearly fee.

Forms Reduced from 73 to 20

License application forms are a necessary part of the process, and these should contain all the information about the applicant and the proposed business to satisfy the issuing authority that both meet all conditions set forth in the ordinance. Some administrators may think that it is desirable to have a separate application form for each type of business to be licensed. However, I have found that, by combining several businesses of a similar nature and for which ordinance conditions are the same, I could reduce the number of forms from 73 to 20. This resulted in a saving of printing as well as storage space for the forms in daily use. On the backs of our application forms we have provided space for recording pertinent data relative to the issuance of the license. The form is on 8½-inch-by-11-inch paper and the various parts are arranged so that it can be folded twice and filed in regular document files.

When the application is filled out and filed, a member of my staff examines it carefully to see that all of the necessary information has been provided and that the signature of the applicant, or his agent, has been properly notarized. We then collect the fee and proceed to type the license. The license form is made up as a quadruplicate snap-out form, the first copy serving as a certificate of license, and the second as a temporary receipt. The third goes to the finance department and the fourth is our file copy.

When the license is typed, the temporary receipt and the finance-department copy are sent along with the fee (by pneumatic tube) to the City Treasurer. The two copies are marked "paid"; one copy is retained by the Treasurer, and the temporary receipt is returned to us and given to the applicant. The original, or certificate of license, is kept by us to be issued later. The fourth, or file copy, is placed in a temporary file according to type of business and held there until after the license is issued.

Following this operation, the application is transmitted to the various inspection agencies whose approvals are required by the ordinance before the license may be issued. When all of the necessary approvals have been recorded on this application, it is returned to the Clerk's office and the original copy of the license is delivered to the licensee. Any badge, plate, or sticker required is delivered with the certificate of license. We furnish badges for taxicab drivers; stickers for amusement, vending, and music machines; and plates for licenses on mobile units, such as taxicabs, garbage trucks, drays, etc.

Permanent Record Cards

Records are important in the administration of a licensing system, and the posting of information on the permanent record card is the next step in our procedure. We use a 4-by-6-inch card on which is placed the name of the licensee, type of business, the license year, license number, date of application, plate, badge, or sticker number (if any), fee paid, and the initials of the employee doing the posting. If a bond is required, the effective dates are posted on the file card. I might say here that through the cooperation of agents of bonding and insurance companies we have been able to have bonds issued for periods which coincide with the period for which the license is issued. This eliminates considerable work on the part of our staff in checking bond expirations and the correspondence connected with getting renewal certificates filed.

These little 4-by-6 cards have sufficient space to keep a 15-year record of any licensee. If a business is sold, we make a record of the date and new license after the last entry and file the card alphabetically in the file for that purpose, which we refer to as the canceled file.

Financial and Physical Controls

Actual financial control takes place through the finance department and constitutes a check on the clerk or whoever is responsible for the collection of license fees. When we collect the fees, you will remember, it is sent with two copies of the license to the City Treasurer. He returns the temporary receipt to us and retains one. The one retained, after being used in the check of the day's receipts of the teller, is taken to the controller's division. It is checked for the amount of the fee charged and is recorded in the classified account for that type of license. This record is used by the director of finance at budget time to estimate revenues anticipated from that source for the coming year. This record is also an excellent source of information for statistical reports.

In those cities where the collection of fees is made by other departments than the treasurer and the receipts are not turned over to the treasurer as collected, the regular procedure of checking and balancing may be followed.

Physical control is exercised through the inspection agencies of the municipality. These agencies in large cities may consist of many trained or experienced technicians, specializing in one type of inspection. In smaller communities all inspection services may be performed by one or two persons.

The inspections most commonly found necessary are Fire, Police, Sanitary (Health Department), Sanitary Building Inspection of plumbing), and Public Works (general building inspection by the Bureau of Permits and Inspections). The licensing ordinance will probably specify the inspections and approvals necessary for the issuance of any license and this in turn sets the

* Excerpts from a paper presented at the annual convention of the Michigan Municipal League, held at the Hotel Statler, Detroit, October 5, 1950. Copies of the complete paper and of the licensing forms used in Saginaw are available on application to the author.

pattern for repeat inspections. In other words, the ordinance may require approval of the Police, Fire, and Health Departments for the issuance of a license for a hotel. It follows that periodic inspections should be made by each of the three at intervals determined by them. The nature of the business would be the factor which determines the frequency of inspections. Thus, a food-handling establishment may require an inspection once a month by a Health Department inspector and none by any other, whereas a smoke shop or poolroom may require many inspections by the Police Department and none by any other.

A number of the inspectional services are very specialized and require highly trained personnel. For example, slaughter houses should be maintained in a sanitary condition and the inspector must be able to recognize the lack of proper facilities or the improper use of the facilities available; also, the animals to be slaughtered should be examined to determine that there are no harmful diseases or defects present. The latter indicates that a trained veterinarian would be the proper person to carry on this type of work. Another example would be the milk supply, a very important factor in the city's welfare. Inspection in this field begins with the farm that produces the raw milk, and carries through the collection process, the processing plants, and the distribution system. Trained personnel is required to make the inspections; trained personnel is required to make the various tests necessary to insure a wholesome, safe supply.

Another phase of inspection, although not directly connected with licensing, illustrates the increasing need for trained, specialized personnel in the inspection services. That is the field of air-pollution control. Formerly we looked upon the "smoke nuisance" as one of the necessary evils, but in later years, as fuel-burning equipment improved, our industrial structure became more complex and the problem grew to be far greater than just smoke control. It has become necessary for cities to do something about it. This field requires the employment of technicians and the use of scientific apparatus.

Rules to Limit Power

Whenever or wherever discretionary power is vested in administrative officers to approve or disapprove the issuance of any license, definite rules of action should be established to limit its exercise to reasonable limits.

Microfilming Resolution Passed by Dearborn, Mich., Council

RESOLUTION to support and prove claims of homeowners and industries for reparations in the event of partial or total damage by enemy action, adopted unanimously by Council on September 5, 1950:

WHEREAS: There is an imminent possibility that enemy action by way of an atomic-bomb attack or sabotage may strike this area at any time, and without notice; and

WHEREAS: Such an attack would destroy partially or totally many homes, as well as business and industrial establishments, and would possibly destroy the records now safely reposing in the Dearborn City Hall; and

WHEREAS: The homes in Dearborn and many of the business and industrial establishments represent the life savings and entire investment of the residents of this city, and

WHEREAS: The Federal Government will, of necessity, recognize its obligations to the citizens of this and all other vital areas and will take steps to reimburse the owners of property damaged by enemy action at some future date either by federal grant, by reparations, by re-adopting War Risk Insurance, or in some other manner; and

WHEREAS: To properly support and prove the claims of our homeowners and business establishments it is necessary to produce proof of the kind of property owned and its destruction; and

WHEREAS: The best evidence, in the event of partial or total damage of said property, is contained in the complete and exhaustive records of the City f Dearborn Assessor's Office;

THEREFORE BE IT RESOLVED BY THE COUNCIL OF THE CITY OF DEARBORN

Section 1: That the Director of Civil Defense is hereby authorized and directed to immediately record on microfilm such property-description records of the Assessor's Office as the Chairman of the Board of Assessors shall deem vital.

Section 2: That the Director of the Department of Civil Defense is hereby authorized to microfilm such other public records as the City Clerk, City Treasurer, or other city department heads shall deem necessary.

Section 3: That the Director of the Department of Public Works is hereby authorized and directed to immediately construct an underground bombproof depository in Camp Dearborn suitable for the purpose of storing the microfilm records in such a manner as to withstand any enemy action, as well as any acts of God, such as earthquakes and floods.

Section 4: That the Director of the Department of Civil Defense shall be the custodian of all such microfilm records.

Section 5: That to carry out the provisions of this resolution, the Director of the Department of Civil Defense is authorized and directed to use such personnel from the various departments as is necessary to process the records of that department.

Dearborn's Council President and Acting Mayor Marguerite C. Johnson on August 30 asked Senator Homer Ferguson the following question: "Have any plans been made for reimbursing owners of private property, particularly homeowners, in the event of damage by enemy action either from federal funds immediately or by war reparations later?"

Senator Ferguson's answer was: "I yesterday (August 29) introduced a bill in the Senate to reinstate War Risk Insurance. This would enable people, by the payment of a very small premium, to insure their homes against such loss."

Cities Establish Administrative Assistants' Posts

MORE cities are providing assistants for their administrative heads, a survey by the International City Managers' Association shows.

A total of 101 of the 346 cities and counties which responded to a special questionnaire sent out by the Association reported having administrative assistants on their payroll. This is 29%, or almost 3 of each 10 local governments that replied to the query.

California topped all other states in the number of cities having administrative aides, with a total of 20. Michigan was the runner-up with 12, and Virginia was third with 9. Kansas, North Carolina, and Texas ranked next, with five each.

Fifty-three of the 101 reporting cities that have assistants have less than 25,000 residents. Assistants were also found in 17 cities with a population of 25,000 to 50,000; in 18 of the cities in the 50,000-to-100,000-population group; and in 13 of the large urban cities with populations of more than 100,000.

Virginia League Elects City Manager Biggins President

AT THE 45th annual convention of the League of Virginia Municipalities, held at the Hotel Cavalier, Virginia Beach, with an attendance of some 550, J. C. Biggins, City Manager of Newport News, was elected president. Harold I. Baumes continues as executive secretary of this efficient organization.

Springfield's New Sanitary Fill

. . . operates successfully close to fairgrounds, a residential area, and an historic cemetery

Commissioner Locke, right, inspects Springfield's new sanitary landfill.

By FRANK HOKE LOCKE
Commissioner of Public Works
Springfield, Ill.

AFTER several years of planning and inspection of other installations in Illinois, we now have in operation a completely mechanized landfill system of refuse disposal. Situated near the Illinois State Fairgrounds, Oak Ridge Cemetery (Lincoln's Tomb), and not far from a first-class residential district, the 17-acre dump has been a problem since its opening. Now the city's refuse is being handled without odor or burning and the site is fast approaching a park-like appearance, except where current operations are taking place.

The equipment we use includes a P & H dragline with a ¾-yard bucket. The dragline operates with a 45-foot boom; this length was found most satisfactory after some experimenting with a 35-foot length.

The dragline is used to dig a trench 20 feet wide and 14 feet deep. The ditch is opened and closed each day. A dragline was chosen because of the size of the operation. The refuse is pushed and packed in the trench with an Allis-Chalmers HD7 track-type tractor equipped with a Baker bull-dozer.

In the first 4½ days of operation, 448 loads of refuse were placed in the trench. The dump is open eight hours a day and requires a crew of two operators and a dump supervisor.

In unloading at the trench, the city trucks, which are of the modern, closed type, back into the front end of the trench. A ramp is built up with the refuse.

Privately operated trucks unload from the side into the trench, opposite the stacked earth of the dragline. Most of these trucks are unloaded by hand.

The tractor not only packs down the refuse as it is loaded into the trench, but also packs down the earth over the trench after the dragline has been used to fill it.

In the management of the dump, private contractors pay 50 cents a load for dumping privileges. Cooperation on this idea has been good in view of the fact that the county board of supervisors is choosing all open dumps. The per-load fee will be considerable in helping pay the costs of operating the landfill dump.

Trees and brush are stacked in a separate area of the dump and will be burned once a week. Smoke over the adjacent area is now reduced to the very minimum.

Fill Will Enhance Land Values

While the present operations have been in effect only a short while, it is evident that property values in the adjacent area and the recreational facilities at the Fairgrounds will be enhanced. Also, the dumping property itself may, in time, become a valuable asset to the City of Springfield, should it ever be put up for sale or converted to other uses.

The refuse collection by the city is made with 13-yard Leach Refuse Getters with covered bodies on 4½-ton Federal trucks. The refuse we collect from city residences includes garbage, tin cans, crockery, grass, and almost everything that the people put out, and is all collected at the same time.

I might also add that the amazing thing to me is that we are building the sanitary landfill over the old dump, and it is working out well because we are starting our trench back where the open dump originally started about 12 years ago.

Highway Costs and Local Taxes

AT its well-attended annual convention, held in the Hotel Statler in Detroit, October 4-6, the Michigan Municipal League protested against the inequitable distribution of highway-tax moneys and the lack of home rule in taxation which are handicapping municipal progress in many states.

The highway-legislation resolution pointed out that "municipalities have been unable to provide adequate street facilities due to the lack of just recognition of the municipal requirements in the formula for distribution of highway-tax moneys," and reiterated the League's unqualified support for legislation recommended by the Michigan Good Roads Federation. On the subject of excise taxes, the League urged the State legislature "to grant to all cities and villages in Michigan the power to levy excise and specific taxes so that a source of revenue other than property will be available to allow the equitable distribution of the cost of local government among the taxpayers, and that this grant of power be such that a variety of possible tax sources will be available to provide the necessary flexibility in municipal finance."

Four new trustees of the Michigan Municipal League were elected on October 6: Mayors H. J. DeVette, Muskegon; John W. Cominsky, Kingsford; Paul Goebel, Grand Rapids; and John Biery, Manager, Midland.

At the board meeting immediately following the election of trustees, Mayor William V. Bailey of Battle Creek was re-elected by the Board as President of the Michigan Municipal League for a one-year term.

Lucas Gusher's 50th Anniversary To Be Celebrated by Beaumont, Texas

By HOWARD J. HICKS
Publicity Director
Beaumont Chamber of Commerce

ON JANUARY 10, 1951, the fiftieth anniversary of the discovery of the Lucas Gusher will be observed with appropriate ceremonies. This important discovery, the world's first great well, will be re-lived by hundreds of participants in the original Spindletop development and by thousands and thousands of men, women, and children, who have directly benefited by the progress which the Lucas discovery brought.

In 1901, Beaumont was a sleepy little logging town, with a population of about 10,000.

For many years, "crazy" fellows had been trying to dig holes in the earth on a peculiarly formed piece of land south of the city, known as Spindletop.

Many dollars had been sunk in what was known as Devil's Hole. The discovery of the Lucas Gusher was dramatic, and its effect was felt throughout the world. For eight days the well ran wild, spilling almost a million barrels of oil over the countryside.

Birth of the Big Oil Companies

From the Lucas gusher the modern oil industry has been developed. The Beaumont field saw the beginning of the Texas Company, the Gulf Oil Corporation, and other oil companies.

John W. Newton, vice-president and general manager of refineries of the Magnolia Petroleum Company, is chairman of the Spindletop Fiftieth Anniversary Committee. Serving with him on a Management and Directing Committee are Scott W. Myers, an independent; Phil Justice, of the Sun Oil Company; W. W. Leach, Magnolia Petroleum Company; M. E. Brock, Gulf Oil Corporation; Frank Wallace, the Texas Company; C. W. Cooper, the Pure Oil Company; Dr. A. M. McAfee, Lamar State College of Technology; I. F. Retts, president of the Beaumont Chamber of Commerce and president of the American National Bank, as treasurer, and Howard J. Hicks, of the Beaumont Chamber of Commerce, as recording secretary.

A number of committee chairmen have been named to work out various details for the celebration.

While a big fanfare will be centered about the tenth day of January, the anniversary will be celebrated throughout the year, and one of the many important factors in the celebration will be the convening of a number of the major oil associations in Beaumont. These include the Spring Production Meeting, Southwestern Division, American Petroleum Institute; the Texas Independent Producers and Royalty Owners; the National Oil Scouts and Landmen's Association; The Texas Mid-Continent Oil and Gas Association, and others. Invitations have been extended to several other associations.

The Spindletop Fiftieth Anniversary Committee has had several meetings with representatives of the industry, because the committee wants the industry to have a part in the directing of the celebration.

The celebration is being held at the suggestion of the Beaumont Chamber of Commerce, which has conducted all the preliminary work in connection with getting the organization established.

The celebration committee will be incorporated, and Herb Weinert, attorney for the Sun Oil Company, will handle all the legal details for the committee.

The committee is having a Spindletop envelope prepared which will be made available to all Beaumont business houses. In addition there will be decals for automobiles, Spindletop ties, and numerous other souvenirs. The committee has been trying to secure a special-issue stamp, feeling that Spindletop and Lucas Gusher are worthy of a commemorative stamp. However, this has not as yet been accepted by the Post Office Department.

If a stamp is not obtainable, the committe may try to get a commemorative half-dollar struck for the occasion.

The Spindletop celebration already is the talk of the industry. The committee has circulated to all national advertisers in petroleum magazines information about the forthcoming celebration, and many of them have written to say that they will include the story of Spindletop in some of their ads between now and the end of 1951.

Nearby Cities Cooperating

While this is primarily a Beaumont celebration, Port Arthur, Orange, Houston, and surrounding communities are being invited to participate, because the discovery of the Lucas Gusher meant a great deal for all of these communities. Port Arthur was only three years old when oil was discovered at Beaumont, about 15 miles away, and it immediately made a city of the community on the Sabine Lake. Houston can trace much of its present-day importance to Spindletop.

The Beaumont Chamber of Commerce will hold its annual meeting on January 10 next year, and the speaker will be a prominent leader in the petroleum world. It is hoped that this program can be given a nationwide hook-up.

Aerial view of Beaumont, where elaborate plans are under way for a gala celebration in 1951, when the city will be host to the nation's leading oil men. The city will observe the Fiftieth Anniversary of the bringing in of the Lucas Gusher at Spindletop which transformed the small sawmill town into a booming city. Gulf, Texas, Sun and Magnolia Companies had their beginnings here.

Is Your Newspaper Behind You?

Nobody missed the point when *The Milwaukee Journal* printed a series of pictures, including these, as a spur to action. Pictures and editorials, a part of the "Cleaner Milwaukee" campaign, publicized the municipal problem and aroused citizens to work with their officials to solve it.

Local paper may play a big part in solving municipal problems: see what *The Milwaukee Journal* is doing

By JOHN BOULET
Public Relations
The Heil Company
Milwaukee, Wis.

MUNICIPALITIES may have giants on their side—their local newspapers. Whether it is a problem of enlarging the budget, planning municipal improvements, or adjusting to a new ordinance, each municipal department can profit by having its story effectively told in the hometown press. It is a public-relations tool available at all times, and at no cost.

The purpose of such publicity is not necessarily to convince the reader, but simply to get him to think about municipal problems. The fact that wide-awake editors welcome news of campaigns, plans, and accomplishments makes planning such publicity a pleasure for officials. Results of such publicity are four-fold: It cements the relationship between government and the taxpayer; it spurs civic consciousness, and may result in cooperative action where all else has failed; it puts the department on the offensive instead of the defensive; it builds a sound bond between molders of public opinion and government.

What a newspaper can do to help municipal officers get a job done is well illustrated by *The Milwaukee Journal's* vigilant campaign against improper handling of garbage and trash, from the time it leaves the kitchen until the time it is destroyed.

During the city-wide "Cleaner Milwaukee" program, *The Journal* printed editorial-page pictures of overflowing garbage cans and trash heaps in back yards and alleyways. With each picture, the address of the offending house or place of business was printed. Along with this "shame-on-you" plan, *The Journal* urged block committees to do something about it.

In hard-hitting, concise editorials, the paper said:

> This is no corner of a city dump. . . . It is a receptacle under a stairway of a Milwaukee home. In it are garbage, paper, trash, bottles, tin cans with food clinging to them. Swarming over it are flies. To it come rats. . . .
>
> It is a breeder of disease and filth. It is the kind of condition which creates not only physical junk yards but human junk yards. It symbolizes conditions which create delinquency.
>
> Milwaukee should be ashamed of this picture. If Milwaukee residents fail to clean up conditions like these, Milwaukee's laws should be enforced to make them do it.

These are strong words for *The Milwaukee Journal*, usually considered a

conservative newspaper. But it is an example of how citizens can be shaken awake to cooperate in solving problems that face the modern municipality. Another editorial said:

> Here, in one picture, is a triple threat to the Cleaner Milwaukee campaign. Garbage is improperly stored. . . .. Rubbish is improperly stored. . . . The yard is rubble-strewn.
>
> Here is a job for a Brady Street block committee. If city garbage services are at fault, a block committee should get its alderman on the job. If individuals are to blame, a block committee should make them realize that they are destroying the neighborhood as a place in which to live and raise families.

A Constant Problem

Campaigns such as this one, of course, cannot accomplish results in a few days or a few weeks. The problem is constant and so the treatment must be constant, too. Fortunately, *The Journal* realized this, and has continued its service to the city. Still directing its efforts to making citizens think about the problem, the paper recently (August 23, 1950) published this editorial:

> The United States has been so busy sending "know how" abroad and planning the Point Four programs for "backward" nations that it will come as somewhat of a shock to learn that in some ways we're a "backward" country ourselves.

U. N. Makes Study of Garbage Removal

We are—according to a study made by an expert of a United Nations agency—next to primitive when it comes to garbage disposal. The American surgeon general, Leonard A. Scheele, asked the UN World Health Organization for some advice and technical assistance on what to do about American garbage and refuse. The WHO named J. C. Dawes, British Ministry of Health engineer, to give the United States a hand.* Dawes came, saw, and was horrified. He submitted a report on the bad state of American garbage—a report which, according to the *United Nations World* magazine, was "studded with exclamation points."

Mr. Dawes, on a visit to 20 American cities, "was frankly amazed" at the backward conditions he found. . . . Open dumping, unsanitary storage, collections in open vehicles, poorly organized collections, and improper disposal facilities were prevalent in almost every community Mr. Dawes visited. He set forth a seven-point program to remedy the "filthy" conditions—with suggestions ranging from use of uniform and tightly covered garbage cans to regular collections in closed vehicles, from bans against open dumping to use of modern, sanitary disposal methods. . . .

Mr. Dawes' findings shouldn't be shrugged off. They ought to knock some smugness out of us. . . . We're a backward nation, too, in some ways and we ought to remember it when we look down our noses at others.

Results? *The Journal*, respected by the public, is helping to make Milwaukee conscious of cleanliness. It is, thereby, helping the city to get a tough job done. Whatever the municipal problem, a public-spirited newspaper in your community, with the cooperation of municipal officials, can do wonders in putting over an project which is desirable.

* An article by Mr. Dawes on the handling of refuse in the United States will be published in an early issue of THE AMERICAN CITY.

Corporate Giving And Private Philanthropy

To the Editor of THE AMERICAN CITY:

As evidenced by the letters which your magazine has published in your two-part symposium, "As Big Companies View Their Civic Responsibilities," * there has been a growing trend on the part of corporations to contribute corporate funds toward the support of private philanthropy. This is encouraging, but a careful analysis of certain facts suggests the urgent need for speeding up this trend.

The history of private voluntary institutions reveals that wealthy individuals have contributed generously toward the maintenance and growth of our educational institutions, our character-building agencies, and our voluntary welfare agencies. In the past several years, however, this source of revenue has been slowly drying up, due to high individual taxes.

The most recent available figures indicate that only about 1% of the total net taxable income of corporations was channeled into voluntary philanthropy during the year 1948. It is conservatively estimated that these gifts represented about $250,000,000. If all corporations, however, had channeled funds up to the allowable 5% tax deduction, this would produce an additional $1,000,000,000 and an aggregate sum of $1,250,000,000.

Critical Financing Problem

Carrying our analysis further, we find that the institutions of higher learning and the aforementioned voluntary agencies are confronted with a critical financing problem. Increased costs of operation added to reduced return on endowment investments have produced a situation bordering on strangulation. For the protection of our moral standards and our way of life, these institutions and organizations must continue in business. This can and will be true only if they are placed in a position of balancing their budgets. It is obvious that their administrators prefer securing necessary capital for current operations and building projects from private rather than governmental sources. This preference is shared by business leaders and the public at large.

Volumes of newsprint and oral presentations have been devoted to the health problems of our nation. The training and educating of qualified administrators—the physicians and surgeons—is one of the important tangents of our educational system. Pointing to the Medical Schools of the nation as an example of our problem, it has been stated that an additional $40,000,000 is necessary to finance properly the current planning and operating requirements. This does not take into consideration any new construction.

There is that school of thought which says it is impossible to secure this tremendous sum of money through avenues of private philanthropy. The figures quoted above regarding the potentialities of corporate funds as one source would tend to question this statement.

Most Stockholders Approve Corporation Gifts

Recent studies of public opinion reveal that a very substantial majority of stockholders approve corporation gifts. Taking this as a cue, it would then follow that a greater number of stockholders could be encouraged to approve this type of gift and investment if they could be shown fully the implications involved.

There are folks in all walks of life who own a portion of the assets of corporations, either through direct ownership or through life insurance. But, is there an awareness of the main factors that safeguard these investments? Does each know that the continued value of these holdings is contingent upon strengthening our capitalistic system?

How can we expect the carpenter, the bricklayer, the skilled mechanic, and the employed in all vocations to act intelligently unless each understands that prior sources from which philanthropic sums flowed are drying up . . . unless there is a full cognizance of the vital need for the continued independence of thinking and freedom of action that persists in an unchallenged manner in these institutions of learning and the character-building and welfare agencies?

Liberty does have a price tax. Unfortunately, that price is high. We have the right to choose the road on which we wish to travel. If willing, we can meet the price. The decision rests in the hearts of all free Americans.

MAYNARD J. HAMMOND
The Fulfilment Fund
Loyola University, Chicago, Ill.

* See THE AMERICAN CITY for June 1949 (pages 93-94) and March 1950 (pages 118-120). Reprints are available free.

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Syracuse Citizens Foundation Stresses Rights and Responsibilities

A GROWING program of community education and action is being evolved by The Citizens Foundation, a four-year-old non-partisan and non-sectarian organization, which is exerting increasing influence in the Syracuse area for local government and community improvement.

The Foundation is a membership organization composed of representative citizens, cutting across all special interests and segments of the Syracuse area. It was conceived in the summer of 1946 by a group of eight business and professional leaders who were seriously disturbed by the general public apathy toward fundamental economic, social, and spiritual values. A Statement of Principles and Purpose was prepared after consultations with a group of younger men from various fields, and the group was formally organized in July 1947, and incorporated in November of that year.

Defense of Basic Freedoms

The Citizens Foundation is devoted to the defense of the basic freedoms, which we in America may be losing—partly from attack, but largely by default. Our freedoms—economical, political, and moral—are in danger of being permitted to slip away in return for promises of a life of less personal responsibility. The members of the Foundation emphasize the element of individual responsibility, on the part of all citizens, for an active defense of the American system. The Foundation furnishes the means for pooling the limited time and resources of those who are deeply concerned with the need for development of a wider public understanding and acceptance of the principles and processes of a free economy, as contrasted with other "isms" and planned economies.

The integrity, energy, and intelligence with which we assert our rights and shoulder our individual responsibilities as a free people will measure the extent of our right to remain free, and the prospect of our continued enjoyment of the American heritage of freedom. As set forth in the Foundation's Statement of Principles and Purpose, "By freedom, we mean that concept of a free society in which each person has the greatest possible opportunity to develop as an individual. We believe that freedom cannot exist separately from responsibility."

The Citizens Foundation now has 140 members, including a former Republican mayor of the city, and the present mayor, a Democrat. These men carry on the group's program by serving on a number of task committees which cover fields of activity ranging from religious cooperation and human relations in business, through youth and higher education, to veterans' affairs and taxation. As a general rule, the Foundation engages in programs only when principles are at stake, and limits itself to educational work in the area.

Four typical educational activities which the Foundation has sponsored are: a program of visitations for vocational-guidance counselors and vice-principals of the Syracuse school system to local industrial plants, for developing a better understanding of the problems faced by industry and by the educators; a study of local taxation and finance problems in order to bring to the attention of the public the serious consequences of lack of proper financial planning on the part of governments; the sponsorship of a course in business fundamentals, which is designed to acquaint a wider cross-section of the community with the facts on economic inter-relationships; and a successful program to develop greater understanding of religious social-justice principles of the three major faiths through a series of community forums at which representatives of the Catholic, Protestant, and Jewish faiths discussed their respective principles.

The Citizens Foundation took an active part in the establishment of the Syracuse Governmental Research Bureau. Several members of the Foundation served as members of the sponsoring committee, and each of the regular members undertook to contact prospective financial supporters of the Bureau. Liaison with the Research Bureau's activities has been maintained through the Foundation's Local Government and Taxation Committees. The Foundation has made recommendations for changes in the local tax structure, and for the planning and financing of municipal capital improvements. It is currently giving attention to proposals for the adoption of a county-manager government in Onondaga County.

Hoover Report Committee

The Hoover Report Committee has conducted an education and information program designed to bring to the attention of the citizens the importance of giving effective support to the recommendations of the Commission for Reorganization of the Executive Branch of the Federal Government, as a step toward counteracting the trend toward cumbersome and inefficient government.

A Speakers' Bureau has scheduled numerous talks by members of the Foundation before many types of groups in the Syracuse area. Foundation members have frequently appeared on local radio programs, and the use of television as a medium in the field of adult education is being explored by the Program Development Committee.

President of the Foundation, whose headquarters are at 433 South Warren Street, Syracuse 2, N. Y., is Leroy M. Hanford.

The Mayor of Syracuse, Thomas J. Corcoran, a member and former vice-president of the Citizens Foundation, discusses the problems of municipal finance with Raymond A. Hust (left), vice-chairman of the Foundation's Taxation Committee, and Walter A. Johnson (right), vice-president of the Citizens Foundation and supervisor for educational and youth activities of the organization.

Cities Pledge Cooperation, Ask Support In Cold War Program

American Public Works Association Congress in New York City acts to give complete voluntary cooperation in the nation's defense measures

A PLEA that cities, and in particular the public works facilities that allow the cities to function and become strong bulwarks of democratic life, be kept in mind as our nation adjusts itself to the rearmament effort it finds necessary today, was one of the final highlights of the American Public Works Association meeting held last month in New York City. One of the resolutions, adopted as the Congress closed, read as follows:

WHEREAS, before all the world, the democratic way of life with the opportunity of liberty for mankind is being challenged today by dictatorial powers; and

WHEREAS, the healthy functioning of our cities is essential to the preservation of this democratic life; and

WHEREAS, smooth and efficient public works are mandatory to the proper functioning of the cities;

BE IT RESOLVED that any system of governmental controls recognize the vital necessity of continuing a program in water supply, sewerage, street construction and maintenance, street cleaning, snow removal, refuse disposal and other basic public works functions that will keep our cities a powerful and dynamic force in our democratic system.

Among other resolutions, the Association pledged itself to cooperate in every way possible in the conservation of critical materials needed in any program of national defense in order that the country can cope with any acts of aggression. It also pledged wholehearted support in any federal civil-defense program. It asked further that a more nearly equitable proportion of highway-user funds such as gas tax, motor-vehicle tax and other fees be directed to the cities for the construction and maintenance of their streets, where more than 50% of the nation's automotive traffic is found. It asked also that attention be directed toward uniform laws regulating stream pollution and that municipal salary scales be adjusted to meet the inflationary economic spiral that exists today.

The Congress was notable for the number of predictions for failure that did not materialize. Many said that delegates would not come to New York, yet the Congress broke all attendance records when nearly 1,100 registered. Others said that exhibitors would not bring their equipment to New York, but exhibit space quickly sold out and several manufacturers had to be turned away. Many said that the delegates would not attend the sessions, but the sessions were exceptionally well attended. Many said that New York City was inhospitable and the delegates would be lost, but the gracious and detailed attention given the delegates by the local committee headed by New York's Commissioner of Public Works, Frederick H. Zurmuhlen, dispelled their fears.

C. W. Nichols, Sr., who established an award of merit for outstanding service in the sanitation field.

Among the subjects that received concentrated attention at this meeting for the first time were the subjects of air pollution and public-relations techniques. At the air-pollution panel, smoke ordinances of Pittsburgh and Allegheny County were presented for discussion and distributed among those present by James Devlin, Pittsburgh's Director of Public Works.

Highlight of the annual dinner was the announcement of the establishment of the C. W. Nichols Award for outstanding service in the field of sanitation. The award was announced by Mr. Nichols, chairman of the board of Nichols Engineering and Research Corporation of New York City. The award will be in the form of a certificate plus $500 in cash and will be made to a candidate selected by a committee appointed by the president of the association and approved by the Association's Board of Directors.

Retiring President W. O. Jones, left, City Manager of Fort Worth, Texas, hands the presidential gavel to President-elect Milton Rosen, Commissioner of Public Works, St. Paul, Minn.

The president of the association, elected at this meeting, is Milton Rosen, Director of Public Works, St. Paul, Minn. He succeeds W. O. Jones, City Manager, Fort Worth, Texas.

Pakistan Seeks Planners

APPLICATIONS for the position of Town Planner with the Government of Pakistan are being sought from American members of the profession. Pay for a person recruited in the U. S. is approximately $909 per month, with passage to and from Pakistan provided for the applicant and his family. Contracts run for three years. Candidates must be members or associate members of the American Institute of Planners and/or the American Institute of Architects, and must have at least five years' experience with large schemes of city development, satellite towns, improvement of existing built-up areas, etc. Application giving age, references, full particulars of qualifications and experience, and details of appointments held should be forwarded to the First Secretary, Embassy of Pakistan, 2201 R St., NW., Washington, D. C., by Nov. 18.

Civil Defense.....A Stepchild

THE dream-state in which some business of the Federal Government is conducted was in distressing evidence during the "emergency" meeting of the U. S. Conference of Mayors in October, attended by more than 400 officials representing about 60,000,000 people.

Faced with the realities and responsibilities of effective civil-defense planning, the mayors and other local officials came to Washington primed with down-to-earth specific questions. "Civil defense is on the front doorstep of every city hall in America," declared Mayor David Lawrence of Pittsburgh, the Conference president.

W. Stuart Symington, chairman of the National Security Resources Board, told the group that civilian-defense measures and the preservation of American productive capacity in urban areas may well mean the difference between winning and losing a possible future war against an enemy with vastly superior manpower.

Naturally, when discussion was opened to the floor, the questions flew thick and fast at the N.S.R.B. experts:

- What sort of financial aid can be expected from the Federal Government?
- How far and how fast should we go?
- Will essential police and firemen be deferred?
- What about assigned radio frequencies for emergency-communication set-ups for official use and for amateur radio operators?
- What steps should be taken to prevent industrial-plant sabotage?
- When will standards be announced for shelters, control centers, warning devices, identification colors, etc.?
- Should blackout exercises and other techniques used during World War II be revived?
- When will the Federal Government launch its training program, and what specific guidance will be given local efforts?
- What outstanding lessons have been learned from the practice civil-defense exercises conducted in Washington, Seattle, and Chicago?

The temper of the meeting, supposedly "informative" in character, became somewhat acid when it was apparent that scarcely a single straightforward answer to any of the many questions asked could be obtained from the federal officials present. Mayor Elmer E. Robinson, Mayor of San Francisco, who has been the leading "needler" on the lethargic approach to civil defense at the federal level, reflected the general sentiment of those present when he said, "We feel that civil defense is the stepchild of the Government."

The Mayors were told that civil-defense planning should proceed in an orderly manner, and that there is time to do the job right. It was explained that nothing could be done about estimating federal appropriations and possible allocations for civil-defense purposes until Congress reconvenes later this month. In the meantime, a temporary federal civil-defense organization is being established under the N.S.R.B., which has been in existence since 1947. The N.S.R.B. is publishing a series of manuals on various phases of civilian-defense activity, such as the nearly completed one on shelter design.

Meeting Raised Questions

The meeting raised far more questions than were answered. Some of the local officials, such as Arthur W. Wallander, New York City's Civil-Defense Director, did add considerably to the store of information available. Mayor Albert D. Cash of Cincinnati pointed out that the basic problem is one of permanent municipal organization for disaster relief—and that a possible atomic bomb blast is little different from other disasters except in proportion. The basic questions, he said, are how existing municipal departments are to be augmented with auxiliaries and supplies, and how public apathy is to be overcome.

But emerging from this contact of local officials as a group with leading federal figures are several even more fundamental questions. Is city government and its importance to national security and production adequately recognized? How else can the fumblings of the national government with regard to the vital area of local civil defense be explained?

If civil defense is considered a stepchild of the Federal Government, is this because local government is being increasingly treated in a similar way?

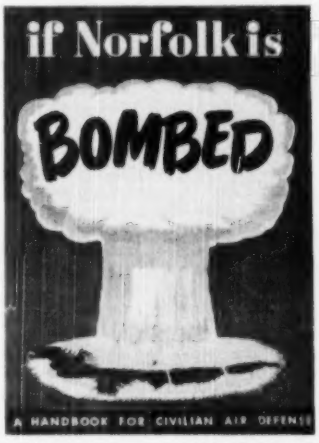
The lesson seems clear. Local officials have a greater stake than ever before in joint action, support, and vitalization of their professional organizations so that the city interest receives full recognition at the high-level national conference tables, and so that the voices of municipal representatives will carry more weight and authority. Local government, closest to the people, is too important as a safeguard of democracy for its basic functions and prerogatives to be ignored or whittled down by "higher" governmental units.

With all the publicity, conferences, and discussions on civil-defense planning, there has been remarkably little official recognition that most suggested civil-defense measures are only remedial, not preventive, and that dispersal is the only effective protection against atomic bomb attack. The fact that space is the best before-the-fact defense and the dilemma this poses for the national economy will receive increasing attention in future issues of THE AMERICAN CITY.

It is probably too much to expect that municipal officials, concerned primarily with existing cities and other physical structures, should wield dynamic leadership on broad dispersal-planning problems.

However, the July 1950 organization report of the Milwaukee Civil Defense and Disaster Committee does include a section on "Long-Range Dispersion Planning" which indicates that Milwaukee, at least, is not overlooking this aspect of the over-all picture.

The report points out that the city has been fortunate in having an active city-planning commission and staff interested in dispersion. It declares that the aim of the Milwaukee zoning ordinance is to spread the city horizontally rather than vertically, as is the city's annexation policy and program.



Norfolk, Va., is one of the first cities in the United States to publish a civilian air-defense handbook and distribute it to every family in Norfolk. One hundred thousand copies of the 16-page, illustrated pocket-sized pamphlet were published and made available without charge to residents. C. A. Harrell, Norfolk City Manager, also has the title of Director of Civilian Defense.

Council-Manager Politics and Civilian Defense Studied at Western Research Conference

ONE HUNDRED AND FORTY-THREE persons gathered at the Bellevue Hotel in San Francisco, September 28 and 29, for the Tenth Annual Conference of the Western Governmental Research Association. Attended by educators and city, state, and federal officers, the discussions centered around council-manager government, civilian defense, urban redevelopment, performance budgeting, and crime research. The panels on council-manager government and civilian defense were the ones of most interest to city officials.

Politics and Council-Manager Government

"Can the city manager avoid becoming involved in politics?" "Where in the council-manager form of government rests the responsibility for political leadership in a community?" "Would the creation of a separately elected mayor fill the vacuum now present in most council-manager cities?" These and other equally stimulating questions were discussed by a group considering the "Theory and Practice of Council Manager Government." Composing the panel were: Wesley McClure, City Manager of San Leandro, who acted as chairman; Ernest H. Campbell, Assistant Director of the Bureau of Governmental Research and Services, University of Washington; O. W. Campbell, City Manager of San Diego, and Richard Graves, Executive Director, League of California Cities.

It is apparent, stated Mr. McClure in his opening remarks, that a wide gap has developed between theory and practice in council-manager government, and that it is necessary for students and practitioners of local government to re-appraise certain traditional concepts in the light of recent experience and modern-day needs. The principle of separation of policy and administration upon which the council-manager form of government is based is not entirely realistic, and most managers are continually plagued with the problem of how to advance necessary public programs without themselves becoming involved in politics. A council-appointed mayor possessing no special powers is typical in a council-manager city, and the speaker suggested that this system has failed for the most part to provide adequate political leadership in the average community.

Policy and administration cannot be separated, City Manager O. W. Campbell of San Diego pointed out, adding that policies are usually developed by the manager and his staff with the council acting as an approving agency. The average part-time council does not have enough time or information to develop programs and policies, and the responsibility necessarily falls upon the manager, thus leading to his involvement in community politics. Every successful manager must exercise political influence in his community, but this is something to be distinguished from political *leadership*. The public and the council usually expect too much of the manager in the way of over-night progress on large-scale public programs. At the same time, they often refuse to staff the manager's office effectively, expecting that he will be able to perform all the work himself.

Richard Graves developed the thesis that the manager's main function is to bring balance and order into the city's governmental program. The balancing of various community needs should be emphasized in the budget progress. This involves the manager in policy formation but does not necessarily mean that he must become a political leader. The creation of a separately elected mayor with certain powers and responsibilities for program development and formation was advocated by Mr. Graves as a means of developing needed political leadership within the framework of the council-manager form.

The civilian-defense group was made up of Samuel C. May, University of California, Chairman; O. W. Campbell, City Manager, San Diego; Howard Gardner, League of California Cities; Col. Jules French, U. S. Army; Dr. B. V. A. Low-Beer, University of California; and Harry Stoops, California State Disaster Council.

Their consensus was that all human effort has to go through stages of planning, organization, training and finally operation. Civilian defense is one of those human efforts that is still in its formative stage. Local units of government must inventory what they can do for themselves before asking a higher echelon of government what can be done for them. Defense must take place on a coordinated basis. Responsibility should lie with all units of government.

Operations must be carried out on a regional basis in order to be effective. We must make plans for evacuation and decentralization. The program should not be a federal military program. The principal problem confronting local government is whether public funds should be spent on civilian-defense projects at the expense of other public services.

For this report The American City is indebted to Eugene Lee, Bureau of Public Administration, University of California, and Edward L. Feder, University of California.

Annexations Are Costly to Cities, Surveys Show

NEWLY annexed areas seldom pay enough in property taxes in the first several years following annexation to cover the costs of city services supplied them, studies cited by the International City Managers' Association show.

In the case of most cities, however, annexation is usually preferable to being hemmed in by small incorporated areas, the Association pointed out.

A recent study by Colorado Springs, Colo., of the probable effects of annexation of four fringe areas on the central city, revealed that there would be a deficiency in revenues for the next five years, as compared with the increased expenditures for municipal services. In one area with a population of 3,600, the first year's revenue deficiency was estimated at $59,730, resulting in an increase in the city tax rate of 1.38 miles. In the second year, the deficiency was estimated to drop to $39,250, and by the fifth year would be only $13,280. Among services that it was necessary to supply to the newly annexed areas were fire protection, public utilities, police protection, street maintenance, and library services.

In Louisville, a newly drafted annexation program sets forth four basic rules that should be taken into consideration when studying annexation of outlying areas: (1) Any municipal expansion of territory should conform to the requirements of sound financing and well-balanced overall development; (2) development of any newly annexed area should not be undertaken if it must take place at the expense of the older parts of the city; (3) a final ordinance annexing territory should not be passed until all litigation, including appeals, has been terminated in favor of the proposal; and (4) no capital improvements in any areas annexed during the current fiscal year should be financed out of the regular city budget, which contemplates no substantial expenditures for them in the older parts of the city.

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Library in Residence District—
Consent Provisions Unconstitutional

NEW YORK. *Concordia Collegiate Institute* v. *Miller*, 301 New York 189, 93 North Eastern (2d) 632 (New York Court of Appeals, July 11, 1950).

In 1909 Concordia Collegiate Institute (referred to herein as the College) bought a tract of land in Bronxville, and developed it as a preparatory school and junior college with an enrollment of nearly 300 and an investment of over $1,500,000. At the time of purchase the site was surrounded by farms and vacant land, but the area nearby has since been built up with private residences. The original village zoning ordinance passed in 1938 listed "educational or religious buildings" among the permitted uses in residence districts. However, by an amendment passed in 1941, educational, religious and eleemosnyary buildings were permitted in residence districts only if (1) a petitioner filed the consents of 80% of the owners of the property fronting on the streets bounding the site, and (2) the Board of Appeals then decided to approved the proposed building. The amendment did not affect multiple dwellings, boarding houses, hotels, or hospitals, all of which were still permitted as of right in the residence district. Ninety-seven per cent of the village was mapped in that district; and the remaining small tract of 19 acres along the New York Central tracks was zoned for business, was obviously unsuited for educational purposes, and was all in use anyway. When a permit for a new library, science building, and laboratory on the campus was refused, the College brought an action challenging the validity of the ordinance.

The case presented was about as tough a one as could be imagined. Under the 1941 amendment, an established educational institution was restricted from expanding any further within its own campus, and for that matter anywhere within the village except in the obviously impossible areas along the railroad tracks. The Courts have been reluctant to uphold consent clauses generally, and so it is not surprising that the New York Court of Appeals threw this one out summarily.

The New York Court made five points in its opinion. First, the restriction here involved was directed against "an educational use which is clearly in furtherance of the health, safety, welfare and morals of the community, and is under the direct supervision, care and concern of the State itself." The Court found it hard to see how a regulation directed against such a use could be justified under the police power. Second, while consent provisions may be proper for "offensive" uses such as billboards or garages, several United States Supreme Court decisions have invalidated restrictions based on the consent of neighboring property owners, on the ground that such provisions involve a delegation of legislative power to private parties. Third, even if consent were obtained, under the amended provision there is no standard to guide the Board of Appeals in permitting or vetoing proposed uses;

> . . . the board is given no guide; to it is committed an unfettered and unrestricted discretion to oppose or reject proposed educational uses. It has been repeatedly held that this may not be done.

Fourth, the petitioner, confronted with an obviously unconstitutional ordinance, was not required first to seek a variance, and could not obtain one in any event. Finally, the invalidation of the amendment containing the consent provisions was held to have restored the previous provision under which the educational institution was permitted as of right.

While this was an unusually raw case, the decision involves two points of broad significance. First, in zoning the trend is away from leaving decisions to private property owners and towards emphasis on legislative action for the general welfare. Second, there has been considerable conflict as to whether community facilities—schools, colleges, hospitals, and so on—should be permitted in low-density residence districts, and the New York Court's attitude tends to support their inclusion in such districts.

Racial Zoning Again

ALABAMA-FEDERAL. *Monk* v. *City of Birmingham*. Federal District Court, Northern District of Alabama, December 16, 1949.

Shortly before the first World War, when Negro migration from the rural South to the cities began to increase, a large number of Southern and border cities passed racial zoning ordinances, attempting to freeze their growing Negro groups into the areas which they then occupied. It should be noted that these ordinances preceded the first comprehensive zoning ordinances. After a split of opinion in the lower courts, the United States Supreme Court decided in *Buchanan* v. *Warley* (1917) that such ordinances were invalid, on the curious ground that they represented an unconstitutional infringement on the right of the white seller to choose his purchasers. A considerable number of Southern cities have simply refused to abide by this decision. As a result, eight cases have come up since involving racial zoning ordinances, some practically identical with the *Buchanan* ordinance and others involving various trick variations. In these decisions the Supreme Court reaffirmed the ruling of unconstitutionality twice, and various Southern courts followed this ruling in all the other cases. In the City of Birmingham, the racial zoning provisions of the local zoning ordinance were declared unconstitutional in 1947, in an action which technically affected only a single piece of property. Nevertheless, the city officials apparently continued to enforce that ordinance; and, during a period of racial tension in border-line areas last year, another ordinance was passed increasing the penalties for violation of the racial zoning provision. A class action was, therefore, brought by Negro property owners, alleging that enforcement of the racial ordinance prevented them from building homes on land which they owned in areas zoned for white occupancy, in some cases after considerable expenditures had already been made; and the United States District Court declared that the ordinance was unconstitutional as to all land in the city.

The Birmingham ordinance was more drastic than some others. It divided the city into white and Negro areas—reportedly reserving 16% of the land for the 40% of the population which was Negro—and provided criminal penalties for the occupation of a residence in violation of its terms for more than 24 hours.

The Court pointed out that *Buchanan* v. *Warley* had decided the basic issue "in language that all who can read can understand." In a careful review of other decisions, emphasizing those in which Southern courts had invalidated such ordinances, the Court pointed out that all arguments used here had been previously made and rejected by the United States Supreme Court. Among the rejected arguments in favor of racial zoning were the following: that a racial ordinance may prohibit use but not ownership of property; that a racial provision was valid if part of a comprehensive zoning ordinance; that it was designed to alleviate racial friction; and designed to protect property values.

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Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Administrative Law—Jurisdiction of Public Service Commission

In action on order to show cause why writ of prohibition should not be issued to enjoin Public Service Commission from hearing application of railroad for order closing city street, held Commission had jurisdiction to hear and determine controversies over opening, closing, or maintenance of railroad crossing within city. *Provo City* v. *Department of Business Regulation*, 218 Pac. (2d) 675 (Utah, May 15, 1950).

Airports—Public Purpose—Municipal Bonds

In action by taxpayer to enjoin municipal authorities from issuing general obligation bonds for the purpose of improving municipal airport, held the improvement and extension of municipal airport facilities is for a "public purpose" within the meaning of constitutional provisions restricting municipal taxation power to such purposes. *Evatte* v. *Cass, Mayor et al.*, 59 S.E. (2d) 638 (S. C., May 23, 1950).

Apartment House—Injury Sustained In—Action Against City

In action against city to recover damages for injuries sustained in an apartment building in possession of city after a final decree in tax-foreclosure action and on which city was collecting rents and profits, held city was engaging in a proprietary function and action could be maintained against it. *Clark et al.*, v. *Jersey City et al.*, 73 A. (2d) 197 (N. J., May 11, 1950).

Bonds—Extension of City-Owned Hospital

In action for declaratory judgment to have voided city ordinance providing for bond issue for extension of hospital owned by city but leased to hospital association, to be paid from rentals of hospital, held ordinance authorizing such bond issue not within the city's debt limit fixed by constitution. *Meier* v. *City of Madison et al.*, 42 N. W. (2d) 914 (Wis., June 6, 1950).

Civil Service—Order Demoting Temporary Captain in Police Department on Return of Veteran

On appeal from order of Civil Service Commission of City of Columbus sustaining order canceling plaintiff's temporary appointment as captain in fire department, held that demotion of plaintiff was required under statute after absent veteran's return and restoration to his position. *In re Sidell*, 91 N. E. (2d) 576 (Ohio, Com. Pleas, December 30, 1948).

Contract—Competitive Bidding—Failure to Award to Lowest Bidder

In action by lowest bidder for injunction to enjoin construction by successful bidder, held action of defendants in not awarding contract to qualified lowest bidder was waste of public funds and their action was arbitrary and illegal, constituting an abuse of discretion. *Fetters* v. *Mayor and Council of Wilmington*, 73 Atl. (2d) 644 (Del., May 17, 1950).

Dance Halls—Protests of Neighbors as Ground for Denial of License for

In proceeding to compel issuance of license for operation of public dance hall in New York City, held objections of neighbors did not constitute proper ground for denial of license. *All-Ireland Ballroom, Inc.* v. *O'Brien*, 97 N. Y. S. (2d) 697 (N. Y. Sup. Ct., N. Y. Co., May 8, 1950).

Election—City Treasurer—Right of Mayor to Vote

Where Mayor presided over Council of Town of Kite at election of Treasurer, held Mayor not member of Town Council and had no right to cast vote causing tie and cast another vote breaking tie so that candidate receiving minority of Councilmen's vote could be elected. *Palmer* v. *Claxton*, 59 S. E. (2d) 379 (Ga., May 9, 1950).

Fortune Telling—Outside City Limits—City Authority to Regulate and Tax

In action by fortune teller conducting business outside city limits but within city police jurisdiction to recover license tax paid as required by ordinance, held fortune-telling subject to police regulation and city had right to so combine its police and taxing power as to levy license tax which for all practical purposes prohibited persons from engaging in such business. *Bridewell* v. *City of Bessemer*, 45 So. (2d) 568 (Ala. App., May 23, 1950).

Gasoline Pumps—Authority of City to Require Removal of

In action by city to require removal of gasoline pumps located within street, held where others maintained gasoline pumps similarly situated, city could not compel removal of these particular pumps. *Mound City* v. *Carbon*, 218 Pac. (2d) 204 (Kan., May 6, 1950).

Gross Receipts Tax—Application to Receipts from Other Jurisdictions

In action by corporation for review of decision of Board of Tax Appeals, held that petitioner which conceded that it transacted all of its business in District of Columbia was subject to tax notwithstanding its business related entirely to Maryland land. *Suburban Title and Investment Corporation* v. *District of Columbia*, 180 Fed. (2d) 387 (C. C. A., D. C., Jan. 23, 1950).

License Tax—Automobiles of Non-Resident—Validity

Where ordinance imposed annual license tax on automobiles used by non-resident employees in city, held ordinance valid as applied to non-resident driving over streets maintained by state and parking on private lot. *Watson* v. *City of Paducah*, 229 S. W. (2d) 453 (Ky., Jan. 24, 1950) *Reh. den.* May 26, 1950.

Milk—Requirement of Duplicate Inspection Void

In suit by non-resident milk distributor challenging validity of ordinance requiring inspection by city prior to distribution of milk in city, held where distributor's milk supply came from city requiring standards similar to those of defendant city that it was unreasonable, arbitrary, and beyond city's power to insist on duplicate inspection. *McClendon* v. *City of Hope*, 230 S. W. (2d) 57 (Ark., May 29, 1950).

Ordinances—Prohibiting Removal of Grain from Cars—Void for Uncertainty

On appeal from order denying application for writ of habeas corpus where relator was convicted on a complaint charging violation of grain ordinance of City of Galveston making it unlawful for any person to take, receive, or carry away any commodity from any grain car standing upon any waterfront property or to buy, receive, or handle any such commodity so taken or received from such cars, excepting employees lawfully engaged in their employment, held the ordinance is void for uncertainty. *Ex parte Wilbur*, 230 S. W. (2d) 540 (Tex. Criminal Appeals, May 31, 1950).

Ordinances—Violation of Waiting Period Invalidates

In action against city to enjoin enforcement of amusement-tax ordinance, held that City Council exceeded its authority by adopting ordinance after 3-day waiting period instead of 5 days as required by city code. *Hukle* v. *City of Huntington*, 58 S. E. (2d) 780 (W. Va., April 4, 1950).

Peddlers—Application of Ordinance

In appeal from conviction of violating itinerant-trader ordinance, held salesman for furniture company having its place of business outside of city who went to home of resident of city and agreed to deliver stove in exchange for old one and cash difference was not required to procure license under ordinance. *Williams* v. *City of Dadeville*, 45 So. (2d) 427 (Ala. App., May 16, 1950).

Policemen—Dismissal on Evidence Taken Outside Presence of Plaintiff or His Attorney

In action by policeman against city for writ of mandate annulling Civil Service Board's order finding him physically unable to perform duties of patrolman and sustaining his dismissal, held that board's reliance on evidence taken outside hearing and presence of patrolman or his attorney was improper, and order would be set aside. *English* v. *City of Long Beach*, 217 Pac. (2d) 22 (Cal., April 17, 1950).

Policemen—Wages and Hours—Fixing of by Ordinance

In action in mandamus to compel the city council to submit to the voters a proposed ordinance which would fix minimum wages and maximum hours for patrolmen of the municipal police department, held since under the local charter salaries of patrolmen were to be fixed by the city manager subject to approval of the city council, the proposed ordinance would in effect alter the government of the city and if adopted would be void, so that it was not a proper matter for submission to the voters. *Patris, Atty. Gen., ex rel. Anderson et al.* v. *Colley et al.*, 73 A. (2d) 37 (Me., April 12, 1950).

Railroad Crossing—Construction of Streets—Active Wrongdoing By City

In action against municipality to recover damages caused when decedent's car was struck by a train at crossing, held construction of a city street at a sharp angle with railroad tracks and failure to provide warning signs at crossing did not constitute active wrongdoing for which municipality could be held liable. *Truhlar* v. *Borough of East Paterson*, 73A. (2d) 163 (N. J., May 1, 1950).

Streets—Driveway Owned by County—Right of City to Regulate Traffic and Parking Thereon

Where county had never dedicated or conveyed to city paved driveway on land not occupied by county courthouse, and same had never been part of city street system, held that county had right to close it to travel by public, and city could not regulate traffic or parking thereon except insofar as such use might affect health, morals, peace, or life and limb of inhabitants of city. *Titus County* v. *City of Mt. Pleasant*, 229 S. W. (2d) 424 (Tex. Civ. App., Mar. 2, 1950).

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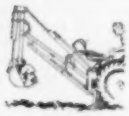
Specifications

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	.5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

• *Standard tractor mounting gives unmatched maneuverability and transportability.*

• *Digs ditches, trenches, footings, culverts, basements and other excavations.*



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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

James W. Bibb, Jr.
Holton, Kans.

Maynard T. McGurn
Green Cove Springs, Fla.

Willis Endicott
Auburn, Calif.

Bernard L. Marsh
West View, Pa.

Mark E. Keane
Shorewood, Wis.

John C. Ferris
New Smyrna Beach, Fla.

R. P. Botch
Pendleton, Ore.

Jack D. Stickley
Cherokee, Okla.

John C. Milliken
Duncan, Okla.

Robert S. Coonrad
Cobleskill, N. Y.

EDWARD B. ABBETT, formerly a steel-company executive, has accepted the appointment as manager of Covington, Ky.

HAROLD H. BABCOCK, maintenance engineer, is the new manager of Rapid City, S. D.

OTIS BACON, former Selectman of Sidney, Maine, has replaced BERNARD L. MARSH at Guilford, Maine.

V. A. BASGALL, former manager of Hays, Kans., became manager of Junction City, Kans., on October 15.

GEORGE BIGGS is the new manager of Ponca City, Okla. He replaces FRANK WINSTED.

E. E. BOYD, manager of Terrell, Texas, from 1943 to 1948, has again accepted the manager position.

E. C. BRANDON, JR., manager of Asheboro, N. C., has accepted the appointment as manager of Burlington, N. C.

JACK S. BRANUM has replaced G. G. MEDERS as manager of Burnet, Texas.

JOHN T. BUSH, treasurer and clerk of Phoenixville, Pa., has accepted the position of acting manager. NORMAN YOUNG was the former manager.

CHARLES B. BRILEY received the appointment as manager of Glendale, Calif. He succeeds CHARLES C. MCCALL.

BERNARD J. BRUNGARDT has succeeded V. A. BASGALL as manager of Hays, Kans.

CARL S. BURRIDGE, manager of Princess Anne, Md., is the new manager of Altavista, Va.

W. D. FOWLER, manager of Clovis, N. M., from 1946 to 1948, is the new manager of Dalhart, Texas.

HORACE B. GULDEN, formerly of Morris Knowles, Inc., has replaced JOHN H. IMMEL as manager of Lewistown, Pa.

ELDER GUNTER, manager of Junction City, Kans., since 1947, has accepted the appointment at University City, Mo.

EDGAR T. HAM became manager of Redlands, Calif., on September 19. Formerly he was city engineer.

ARCHIE HIGH has succeeded DALE A. DAHLGREEN as manager of Chickasha, Okla.

VICTOR C. HOBDAY, formerly manager of Paducah, Ky., became manager of Waxahachie, Texas, November 1.

THOMAS J. HUGHES recently was appointed acting manager of Westmount, Quebec.

A. J. HULL, JR., city engineer, has succeeded D. B. WILLETT (deceased) as manager of Laramie, Wyo.

H. H. HUNT, manager of Yale, Okla., since 1943, has become the manager of Drumright, Okla.

D. H. HURST, has replaced R. P. NORRIS at Tifton, Ga.

FRANK A. JACOCKS, manager of Rock Hill, S. C., has replaced T. EDWARD TEMPLE at Spartanburg, S. C. MR. TEMPLE has been manager of Spartanburg since 1947, and MR. JACOCKS manager of Rock Hill since 1948.

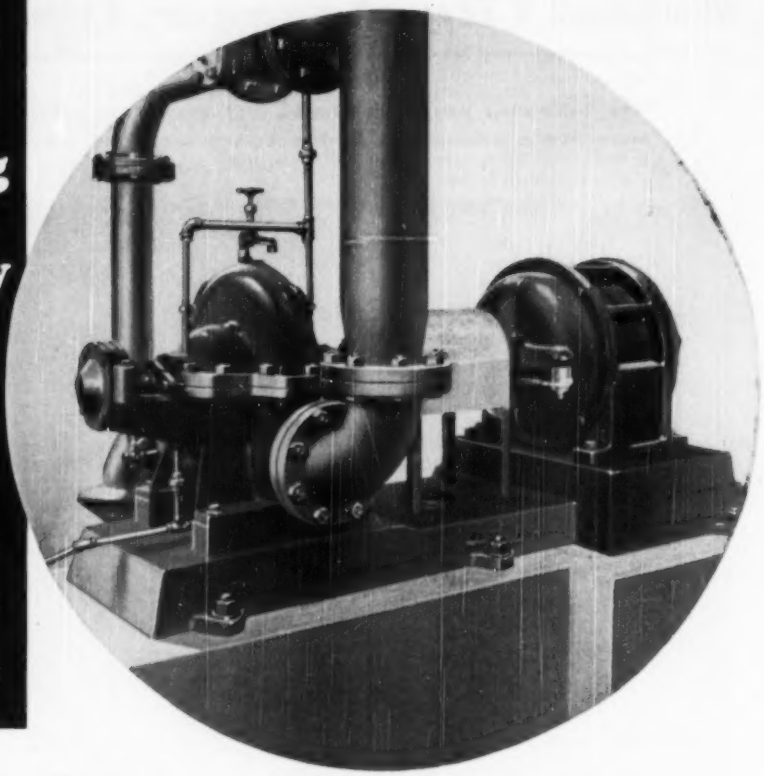
HERMAN D. JOHNSON, general contractor, is the new manager of Milford, Del. He succeeds HARRY F. BRESSLER.

HENRY LEVENS, formerly manager of Ironwood, Mich., has accepted the appointment as first manager of Negaunee, Mich.

(*Continued on page* 143)

Pumping with Economy

A Midwest Utility Reports:



"Only minor maintenance over 3500 hours service"

Recirculating water at 100°, PH 5.0, this Economy 6" x 5" Type M double suction centrifugal pump replaced a conventional pump that did not stand up under the corrosive effect of water laden with tar acids, light oils, fly ash and small amounts of suspended silt. The user of this all-bronze Economy pump, a large mid-west utility, reports satisfactory service . . . minor maintenance.

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Economy Pumps Inc.

DIVISION OF HAMILTON-THOMAS CORP. HAMILTON, OHIO

HARLEY E. LUCAS, city engineer at Norton, Kans., is the new manager of Stockton, Kans.

ROBERT J. MCNUTT, city engineer of Hillsdale, Mich., will be the new manager of Hazel Park, Mich. He will also serve as city engineer.

WAYNE P. MITCHELL of Surfside, Fla., has succeeded RALPH M. BRYANT as manager of Fair Lawn, N. J.

ALVIN W. MORLAND, assistant manager, has succeeded RAY CROW as manager of Mountain Brook, Ala. Mr. Crow is retiring.

KEITH A. MURDOCK has resigned as manager of Claremont, Calif., to become manager of Anaheim, Calif. KALMAN I. DIENES is the new manager of Claremont.

HENRY B. NABERS, former manager of Waxahachie, Texas, is now the manager of Sweetwater, Texas.

THOMAS B. NOLAND has replaced E. N. WILKINSON as manager of Franklin, Va. MR. NOLAND previously held the manager position at Altavista, Va.

CLIFFORD PACK, formerly of the Institute of Government at the University of North Carolina, has accepted the manager position at Asheboro, N. C.

HENRY ROLFES, manager of Golden, Colo., has accepted the position as first manager of Sterling, Colo.

ROBERT E. SHARP, city comptroller, is the new manager of Anchorage, Alaska.

H. W. STARICK, planning director of Dayton, Ohio, is the new manger of Middletown, Ohio.

H. D. STEENSON has replaced JOE MCCLENDON as manager of Lufkin, Texas.

LLOYD WATERSTRAUT, former manager of Three Rivers, Mich., became the manager of Ironwood, Mich., on November 1.

MR. E. N. WILKINSON, manager of Franklin, Va., since 1945, is the new manager of Suffolk, Va.

W. K. WILLMAN, manager of Port Huron since 1947, has accepted the position as manager of Pontiac, Mich.

W. R. WOODBURY, formerly at Suffolk, Va., became the new manager of Falls Church, Va., on October 1.

CLARENCE E. RIDLEY, *Director*
International City Managers' Association
Chicago 37, Ill.

The Municipal Bond Market

City Debt and Revenue Trends As Reported by Census Bureau

By CATHERINE CLARK
Municipal Service Department
Dun and Bradstreet, Inc.

THE debunkers have made a career of disproving the things "everybody knows." This column is going to reverse that procedure and offer supporting evidence for some recent trends in city finance that every city official is aware of. The discussion is based on figures from the Census Bureau's *Summary of City Government Finances in* 1949.

Increase in Expenditures

Every city official knows that expenses have been going up and that it is a constant problem to make revenues keep pace. If misery loves company, aggregate figures for the nation's 397 largest cities (those with a population over 25,000 in 1940) should provide some comfort. Between 1942 and 1949 total general expenditures of these cities increased 68.4%, while total general revenues (excluding borrowing) increased 55.4%. This does not, of course, indicate that cities are going broke. The Census Bureau includes capital outlay expenditures in the total, and these have always been financed in large part from borrowing.

All of the major classes of expenditure, with two significant exceptions, increased between 1942 and 1949. The largest relative increase was in capital outlay, which went up 327.0%. This is no news to city officials who have been spending sleepless nights figuring out how to finance, at today's high prices, improvements which were of necessity deferred during the war. The other classes of expenditure which have had large relative increases are health and hospitals, 103.8%; contributions to trust funds and enterprises, 93.5%; and sanitation, 92.4%. "Contributions to trust funds," of course, includes pensions.

The two classes of expenditures which showed actual declines from 1942 to 1949 were interest and provisions for debt retirement. Interest charges declined each year from 1942 through 1948, but showed a small increase in 1949, the net decline for the whole period being 27.2%. The decline through 1946 represented both declining general debt and the lower interest rates at which cities were able to borrow money; in 1947 and 1948 the lower interest rates more than offset increases in general debt; while in 1949 a continued increase in debt resulted in a slight rise in interest costs. It is worth emphasizing that interest charges paid by these 397 cities were only $123,000,000 in 1949 compared with $170,000,000 in 1942. In the dark picture of rising costs, this represents the one bright spot.

Continuation of Increased Borrowing

Provision for debt retirement declined 6.4% between 1942 and 1949, which is not surprising in view of the fact that gross general debt outstanding at the end of 1949 was 10.4% below that outstanding at the end of 1942. However, this item, which declined each year from 1942 through 1947, went up in both 1948 and 1949, and will probably continue to rise if the present pace of borrowing continues.

While total general revenues increased 55.4% between 1942 and 1949, property taxes increased only 27.8%. Property taxes, in fact, have been declining in relative importance for some time, and in 1949 they furnished only 53.4% of the general revenues (excluding borrowing) of these 397 cities, compared with 64.9% in 1942.

Source of Increased Revenue

Where, then, did the increased revenue come from? The question is not hard to answer for municipal officials, who in recent years have been giving exhaustive study of the problem of additional sources of revenue. Sales and gross-receipts taxes rose 223.2% between 1942 and 1949; "charges for current services and miscellaneous," 100.4%; "licenses and other taxes," 87.9%; and aid from other governments, 82.6%. It is interesting to note that "licenses and other taxes" include city income taxes, a comparatively new source of revenue for cities.

The aggregate general purpose debt of these 397 cities fell from $4,599,000,000 at the end of 1942 to $3,675,000,000 in 1946 and then rose to $4,124,000,000 at the close of 1949, a net decline of 10.4% for the 1942-49 period. Enterprise debt—that is, borrowing for water, gas, electric, transit systems, etc., however, declined in only two of these years and over the seven-year period rose from $3,556,000,000 to $3,768,000,000, or 6.0%. This trend is worth noting. In part, the increase in enterprise debt is due to the fact that during the war this type of municipal construction was urgently required in many areas to meet special wartime needs. But another factor is also important. Just as cities are attempting to put as many services as possible on a service-charge basis, they are attempting to make as large a proportion of their debt as possible self-supporting.

Household Incinerators Can Be a Smoke Menace

THE charge is air pollution, and one of the chief culprits in Columbus is the small incinerator serving the individual home and apartment—so reported the Division of Smoke Regulation and Inspection for the City of Columbus, Ohio.

Throughout the city, the Division finds, are many so-called incinerators such as oil drums, concrete-block walled areas, and other locations that are used for trash and garbage burning. These serve no purpose in relieving the smoke and odors, and the Division has found it necessary to seal this equipment whenever it is found.

The Division also reported a great lack of interest on the part of the builders of these small incinerators to furnish proper equipment to do a good job of destroying trash and garbage without nuisance.

"31 miles of improved lighting

helped reduce night fatalities from 11 to 4"

says Mayor **Cyril Coleman**
Hartford, Connecticut

"THERE were 11 night fatalities in a year on 31 miles of Hartford streets. Improving visibility by increasing illumination was a large contribution in reducing this number to 4. This is additional evidence of what a city can do to combat the danger of darkness."

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Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*).

Nov. 6-7—Richmond, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Convention (Hotel Jefferson). Sec., W. H. Shewbridge, State Dept. of Health, 708 State Office Bldg., Richmond 19, Va.

Nov. 10-11—Cumberland, Md.
MARYLAND MUNICIPAL LEAGUE. Field Meeting (Hotel Fort Cumberland). Exec. Sec., Christian L. Larsen, University of Maryland, College Park, Md.

Nov. 12-15—Fort Lauderdale, Fla.
AMERICAN WATER WORKS ASSOCIATION—Cuba and Florida Sections, and FLORIDA SEWAGE WORKS ASSOCIATION. Joint Cuban-Florida Water and Sewage Conference (Hotel Governor's Club). Chairman, S. K. Keller, A.W.W.A., Florida Section, 504 Pennsylvania Ave., Clearwater, Fla.

Nov. 13-15—Durham, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section. Annual Convention (Hotel Washington-Duke). Sec., E. C. Hubbard, State Board of Health, Raleigh, N. C.

Nov. 13-15—Portland, Ore.
LEAGUE OF OREGON CITIES. Annual Convention (Hotel Multnomah). Exec. Sec., Herman Kehrli, University of Oregon, Eugene, Ore.

Nov. 19-22—Buffalo, N. Y.
NATIONAL CONFERENCE ON GOVERNMENT. Annual Conference (Hotel Statler). Exec. Sec., Alfred Willoughby, National Municipal League, 299 Broadway, New York, N. Y.

Nov. 20-21—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Businessmen's Conference on Urban Problems. Sec., Ralph Bradford, 1615 H St., N.W., Washington, D. C.

Nov. 26-30—Houston, Texas
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference (Hotel Shamrock). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

***Nov. 27-28—Douglas, Ariz.**
ARIZONA MUNICIPAL LEAGUE. Annual Meeting (Hotel Gadsden). Exec. Sec., Joseph C. Furst, 15 South First Ave., Phoenix, Ariz.

Nov. 27-29—New Orleans, La.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Conference (Hotel Roosevelt). Exec. Dir., Charles S. Rhyne, 730 Jackson Pl., N.W., Washington, D. C.

Nov. 27-30—Atlanta, Ga.
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Annual Conference (Hotel Biltmore). Dir., Kenneth O. Warner, 1313 E. 60th St., Chicago 37, Ill.

Nov 29-Dec. 1—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Meeting (Hotel Chalfonte-Haddon Hall). Exec. Dir., James J. Smith, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 30-Dec. 2—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Edgewater Beach). Dir., Miss Loula Dunn, 1313 E. 60th St., Chicago 37.

Nov. 30-Dec. 2—Tucson, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section, and ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Convention (Hotel Pioneer). Sec., Mrs. Helen Rotthaus, State Dept. of Health, Phoenix, Ariz.

Dec. 3-6—Washington, D. C.
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Statler). Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago 37, Ill.

Dec. 4-7—Miami, Fla.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel McCallister-Columbus). Exec. Sec., Hal H. Hale, 917 National Press Bldg., Washington 4, D. C.

Dec. 7-8—Augusta, Ga.
GEORGIA MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Sheraton Bon Air). Sec., Zach Arnold, 1403 C & S Bank Bldg., Atlanta, Ga.

Dec. 11-20—Lima, Peru
FIFTH CONGRESS OF INTERAMERICAN MUNICIPAL HISTORY. Annual Congress. Sec. Gen., Jose L. Franco, Instituto Interamericano de Historia Municipal e Institucional, Cuba 316, La Habana, Cuba.

Jan. 9-12—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Science). Dir., Roy W. Crum, 2101 Constitution Ave., Washington 25, D. C.

***Jan 16—New York, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Meeting (Hotel Park-Sheraton). Sec.-Treas., R. K. Blanchard, 50 West 50th St., New York, N. Y.

Jan. 28-Feb. 1—Chicago, Ill.
ASSOCIATED EQUIPMENT DISTRIBUTORS. Annual Meeting (Hotel Stevens). Exec. Sec., P. D. Hermann, 360 North Michigan Ave., Chicago, Ill.

Feb. 5-7—Denver, Colo.
THE ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Hotel Cosmopolitan). Exec. Sec., Ward K. Parr, 1223 East Engineering Bldg., Ann Arbor, Mich.

***Feb. 15-16—Ann Arbor, Mich.**
THIRD IN-SERVICE TRAINING COURSE IN WATER-WORKS PROBLEMS. University of Michigan. H. E. Miller, Resident Lecturer, School of Public Health Building, 109 South Observatory St., Ann Arbor, Mich.

Feb. 26-March 1—Boston, Mass.
ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Convention (Hotel Statler). Dir., H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

***March 1-3—New York, N. Y**
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Hotel Waldorf-Astoria). Mng. Dir., H. F. Peckworth, 228 North LaSalle St., Chicago 1, Ill.

March 6-9—Atlantic City, N. J.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES (Hotel Traymore). Sec., State Highway Dept., A. Lee Grover, 1035 Parkway Ave., Trenton, N. J.

March 12-14—Milwaukee, Wis.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting (Hotel Schroeder). Pres., E. R. Needles, International Bldg., Washington, D. C.

***March 18-20—Chattanooga, Tenn.**
SOUTHERN ASSOCIATION OF CHAMBER OF COMMERCE EXECUTIVES. Annual Convention. Sec.-Treas., Floyd Kay, Charlotte, N. C.

March 26-29—Lafayette, Ind.
PURDUE ROAD SCHOOL (Union Bldg., Purdue University). Exec. Sec., Ben H. Petty, Professor Highway Engineering, CE Bldg., Purdue University, Lafayette, Ind.

***April 11-13—Hays, Kans.**
KANSAS SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Lamar). Exec. Sec., Dwight Metzler, Kansas State Board of Health, Marvin Hall, University of Kansas, Lawrence, Kans.

Census of Governments to Be Taken Every Five Years

FEDERAL reporting of basic statistics on state and local governments has been placed on a firmer footing by Public Law 767 of the 81st Congress, which President Truman signed on September 7.

This legislation requires that a complete "census of governments" be taken for 1952 and each five years thereafter, covering at least the subjects of "taxes and tax valuations, governmental receipts, expenditures, indebtedness, and employees." The new law replaces a part of the old Census Act of 1902, which merely authorized—but did not require—that such a census be taken each 10 years. Periodic reporting of benchmark government statistics is thus placed on a statutory basis like that which already applied to the quinquennial censuses of manufacturing, trade and service industries, and also of agriculture.

The first major undertaking under the new law will be the Census of Governments for 1952, for which preliminary preparation has already begun. In planning the content and coverage of this undertaking, the Census Bureau has sought the help of a representative group including the state and municipal officials, economic-research agencies, professors of political science and economics, and others directly interested in governmental statistics.

The first major phase of the 1952 census will involve identification and listing of all local governments in the nation. This task, which is essential to the later gathering of financial and employment figures for all governments, will also provide new benchmark information on numbers of governments. By early 1952, the Census Bureau expects to publish such figures, bringing up to date the count last made for 1942, when over 108,000 school districts and 46,000 other local governments were reported in existence.

Subsequent major phases of the 1952 Census of Governments, as now planned by the Census Bureau, will relate to realty valuations for property taxation, public employees and pay rolls, and governmental finances. Census reports on these various subjects are being scheduled for publication at intervals from 1952 until mid-1954.

How **MONOTUBES** contribute to uniform see-ability

NOTICE how evenly abundant light is spread over the above business street. Here, regardless of season, hour or weather conditions, neither drivers nor pedestrians are ever impeded or endangered by spotty, light-to-dark illumination or hazardous shadows. It's a sure sign of sound planning and the proper selection of modern, well-designed equipment. The poles, highly important in the scheme of things, are high-strength, continuous-tapered steel Monotubes.

With Monotubes, the many variables involved in planning for highest street lighting efficiency can be met exactly—never any need to compromise! There are adequate, standard ranges in pole size, gauge, height, arms, brackets and accessories for *any* condition. There are round and fluted types perfectly suited for every kind of service from residential areas and arterial highways to the finest, most distinctive "White Ways".

If you're planning expansion or modernization, be sure to get *all* the facts on how you stand to gain by these and other Monotube advantages. Write The Union Metal Manufacturing Co., Canton 5, Ohio.

UNION METAL

Monotube Street Lighting Standards

Municipal and Civic Publications

Traffic Engineering Handbook

TRAFFIC ENGINEERING HANDBOOK—*Published by the Institute of Traffic Engineers and the Association of Casualty and Surety Companies, 60 John St., New York 7, N. Y. 1950. 514 pp. $6.*

The second edition of the Handbook, just published, brings up-to-date the 1941 edition, and presents much significant new engineering data that have been collected since the first edition appeared. Its purpose is to serve as a daily reference work for those responsible for the solution of traffic and transportation problems. It contains chapters on such subjects as traffic accidents, markings, signs, signals, parking and loading, one-way streets and arterial routes, roadway capacity and design, speed regulation, street and highway lighting, and pedestrian control. Appendix A gives traffic engineering terminology and Appendix B presents a sample specification for traffic control signal cable.

Virginia Municipal Finances

GENERAL ACCOUNTING AND FISCAL REPORTING PRACTICES IN VIRGINIA CITIES—*By Milton L. McPherson. Published by the League of Virginia Municipalities, Travelers Building, Richmond 19, Va., and the Bureau of Public Administration of the University of Virginia, Charlottesville, Va. 1950. 36 pp. Limited number of copies may be obtained from the League of Virginia Municipalities upon request.*

This study of municipal accounting methods in various Virginia cities should also be of interest to municipal officials in other states. There are tables illustrating fund classification in the various cities, books or original entry employed, ledgers in use, and comparison of basis of accounting followed.

Uniform Building Codes

BASIC BUILDING CODE—*Building Officials Conference of America, Inc., 51 East 42 St., New York 17, N. Y. 1950 edition. 370 pp. $5, paper cover; $6.50, cloth-bound.*

This first edition of the Basic Building Code comprises a compilation of fundamental performance requirements for all types of construction and use group classifications of buildings and the means for their administration in the department of building inspection. The Building Officials Conference of America believes that this Basic Building Code contains sufficient detail specifications to make it a working instrument, pending the preparation of the Construction Code by the newly-formed Building Officials Foundation. As stated in the preamble to the Basic Code, a Code Changes Committee and a Materials Approval Committee have been provided by the Conference to take care of subsequent revisions of the code and approvals of materials which meet its requirements.

Questions About Public Schools

WHAT DO WE KNOW ABOUT OUR SCHOOLS?—*National Citizens Commission for the Public Schools, 2 West 45th St., New York 19, N. Y. September 1950. 36 pp.*

This is a collection of questions for people to ask about their own public schools, representing the work of about 200 persons themselves engaged in efforts to better local school systems.

Although the questions may help the individual understand his schools, it is felt that they lend themselves best to discussion and action by a committee representing a cross-section of the community. The answers to school problems can be found only in the communities concerned by the people concerned, and in recognition of this fact, quite a few communities are already planning "answer meetings," in which local educators and all interested residents may participate.

For Contractors and Engineers

THE WELLPOINT SYSTEM—*Griffin Wellpoint Corp., 881 E. 141 St., New York 54, N. Y. 1950. 103 pp. Free to practicing engineers concerned with ground-water problems. $1.50 to all others.*

Consists of seven chapters devoted to the application of Wellpoints to ground-water problems in the construction work. Emphasizes the mutual interest of the contractor and engineer, and covers the basic principles of dewatering, history of wellpoint systems, principles of dewatering soils with wellpoints, components of a wellpoint system, planning the wellpoint system layout, installing the wellpoint system, operating a wellpoint system, removing the wellpoint system and full instructions on the care and operation of wellpoint pumps. It has 38 line drawings and over 30 photographs.

Research on Juvenile Delinquency

UNRAVELING JUVENILE DELINQUENCY—*By Sheldon and Eleanor Glueck. The Commonwealth Fund, 41 East 57th St., New York 22, N. Y. 1950. 411 pp. $5.*

In this research report on the causes of juvenile delinquency, Professor Sheldon Glueck and Dr. Eleanor T. Glueck of the Harvard Law School have classified 500 persistently delinquent boys and 500 truly non-delinquent boys according to body types, medical and psychiatric traits, intelligence and achievements, ethnic derivation, age, and social background. The family, school, and community background was thoroughly investigated in each case. These varied and detailed studies have disclosed a fairly consistent pattern of delinquency and have enabled the authors to draw some interesting conclusions. From their findings, the authors have developed various prediction tables whereby they believe it feasible to differentiate between potential juvenile offenders and non-offenders at early ages. The methods they have used should be valuable guides for further research.

Sidewalk Improvements

SIDEWALK IMPROVEMENTS—*Information Bulletin No. 126, Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash. June 1950. 20 pp.*

The report discusses procedures now in use in the State of Washington for municipal improvement and maintenance of sidewalks. Special attention is given to the Spokane ordinance and assessment procedures.

1950 Accident Facts

ACCIDENT FACTS, 1950 EDITION—*Published by the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill. 100 pp. 60 cents.*

This yearly publication contains probably the most complete breakdown of information on accident facts generally available. It reports that the total estimated cost of accidents in 1949 was $7.5 billion. Local officials concerned with safety will find this booklet especially useful.

A Municipal Guide Book

MUNICIPAL GOVERNMENT IN THE CITY OF WHITE PLAINS, N. Y.—*Office of the Mayor. October 1950. 20 pp.*

This excellent booklet is designed primarily to stimulate the interest of the citizens of White Plains in their local municipal government. It outlines briefly and in concise form the operation of the municipal government of White Plains under its charter. An organization chart is reproduced on the first page, and the last two pages include a directory of municipal officers as of 1950.

New City Planning Text

THE URBAN PATTERN, CITY PLANNING AND DESIGN—*By Arthur B. Gallion and Simon Eisner. D. Van Nostrand Company, Inc., 250 Fourth Ave., New York 3, N. Y. 1950. 446 pp. $12.*

This is a handsome and well-illustrated volume dealing primarily with the design aspects of city planning. It should prove valuable as a textbook for courses on planning and as a reference work on the site plans and layout of most of the major neighborhood and community developments that have been built thus far. The book's usefulness lies in its synthesis and presentation of existing materials so that they become understandable and palatable.

The book begins with a thorough historical review of the outstanding phases of city planning and development, emphasizing their influence upon the patterns of the physical development of the city. It is evident that the authors have invested considerable research time in planning and organizing the many illustrations used, so that they are of maximum interest. The problems presented by the city of today are then discussed, and introduce a discussion of contemporary trends in city planning.

Despite its many admirable features as a recapitulation of past experience, one might wish that the book had included a more adequate discussion of a number of factors which have long hampered city planning progress. More attention might well have been given to municipal and regional organization of planning and its administration, citizens' participation in the planning process, the serious hurdles to urban redevelopment of racial discrimination and of tenant relocation, and to public relations for planning. It is unfortunate, also, that the book evidently went to the printer too early to give any consideration to the Housing Act of 1949 and its many implications. The national and professional organizations interested in planning and its promotion might also have merited recognition and attention.

Some of these lacks will be met, if the student can afford it, by the use of this book in connection with *Local Planning Administration*, published by the International City Managers' Association. But though the contributions of both volumes are great, they together still have gaps which remain to be filled by a more inclusive and creative work on new approaches to planning obstacles.

C.E.C.

How to Solve Your Town's Parking Problems

SOLVING PARKING PROBLEMS, A GUIDE TO COMMUNITY ACTION—*Bureau of Planning, Department of Commerce, State of New York, 112 State St., Albany 7, N. Y. 1950. 64 pp.*

This is one of the most helpful manuals yet published on how communities can solve their parking problems. The attractive, illustrated booklet goes through the specific steps involved in organizing community action on the problem, and poses the alternatives which will be faced along the way. Considerable attention is given to how public support can be developed, and many concrete suggestions are made. A well-organized bibliography has a check list which indicates the information covered in the publications listed.

City Finances in 1949

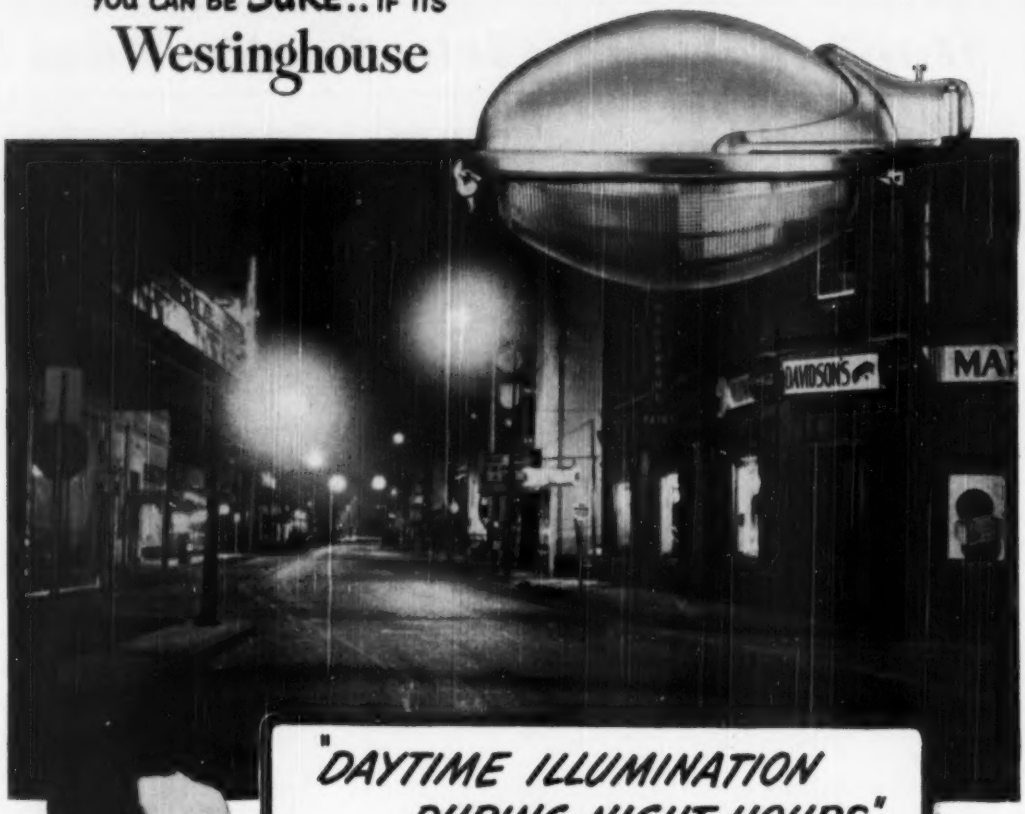
SUMMARY OF CITY GOVERNMENT FINANCES IN 1949—*U. S. Bureau of the Census. City Finances: 1949, No. 1. Washington, D. C. October 1950. 12 pp. tables.*

The nation's 397 largest cities spent $4,500,000,000 for governmental purposes in 1949, as against $4,100,000,000 the previous year and less than $3,500,000,000 in 1947. Their general revenue also reached a new high in 1949, while extensive municipal borrowing brought gross debts of these cities back up to $7,900,000,000, its highest level since 1942. These are among the facts reported in the new issue of this annual census report.

(Continued on page 163)

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



"DAYTIME ILLUMINATION DURING NIGHT HOURS"

"When the City of Houma considered the illumination of its main thoroughfare, it selected the OV-20... Now that our project is completed, our citizens are proud of the daytime neatness of our Main Street with the 'daytime' illumination during the night hours", writes Mayor Leon Gary of Houma, Louisiana.

He points out results by further stating, *"Our merchants are capitalizing on the fine details obtainable in window displays under the Mercury Vapor Lighting system"*.

Not only business results, but added protection, he states, *"Our Police Department is enjoying an easier task from the bright illumination of our high value mercantile area"*.

To sum it all up, *"Frankly, it has been the most popularly accepted of the many projects of our administration"*.

This could be your town. Want proof?

Don't take our word for it. Write Mayor Gary about the new street lighting in his town.

Or better yet, go see the City of Houma. Seeing for yourself is real proof. J-04278-A

There's Danger in Darkness . . . but Safety in Light

Westinghouse
PLANNED LIGHTING SYSTEMS

Outdoor Lighting

On Our Highways Seeing Is Living*

THE BEST possible provisions for highway construction and the most diligent patrolling, the best design of vehicles and the most conscientious actions of the driver—all are nullified if vision and visibility are faulty. Much remains to be done to guard against this defect.

Daytime Seeing

During daylight hours "seeability" is dependent chiefly on the color and the physical character of the roadway surface and its direction, and upon lane markings and roadside obstructions. The American Road Builders Association has recommended a visibility distance of 1,800 feet—one third of a mile—for modern driving speeds. At 60 mph, the warning time is 20 seconds. Obviously, sharp curves with shrubbery or other concealing objects on the inner arc will limit long-range vision, while fog increases the importance of surface markings and reflector signs.

However, with some 1,000 footcandles upon the roadway even on heavily overcast days, objects as large as a man will be seen at many times the safe stopping distance of the vehicle. Traveling at 50 mph, this stopping distance is about 100 yards. In almost any fair-weather daylight, a cat can readily be seen on a highway at considerably greater distances.

Where highways generally run east and west, there are early-morning and late-evening hours when reflected glare from the roadway surface materially decreases visibility, and the driver may be partially blinded. One remedy lies in a choice of surfacing and bordering materials. The greater the contrast in brightness, or reflectivity, of these, the better. Avoid polished road surfaces.

Diffuse Reflectances of Highway Materials†

	Approximate
Clean concrete	45%
Oiled dirt	15%
Tarvia gravel	5%
Dark brick	15%
Powdered shell	70%
White paint	80%
Green grass	10%

† It should be noted that if the reflectance of a good diffuser be taken as 100% when measured normal to the flat surface, this figure will be in the neighborhood of 5%, when viewed at 80 degrees from normal, and that wet surfaces act as mirrors when viewed by the motorist.

Increased traffic at night and greatest utilization of a large capital investment call for artificial illumination on all the 50,000 miles of major routes. Visibility on the highway at night depends on contrasts in brightness of surfaces and surprisingly little on color of light or of object. Headlamps alone cannot guarantee safe and comfortable night-time vision. Overhead sources are needed for satisfactory discernment, the types of which are:

1. Discernment by surface detail, the object itself being illuminated with sufficient light to permit quick recognition.
2. Discernment by silhouette, the object being seen in bulk, with outline wholly or partly contrasted against the brighter background.
3. Discernment by glint, the object or detail of an object being perceived through specular reflection of light from some polished surface.
4. Discernment by shadow, in which the presence of an object is inferred from its shadow.

Discernment Types Appraised

It will be enlightening to appraise each of these methods of discernment.

(1) In important city districts there should be sufficient street illumination so that objects, whether cars, persons, or obstructions, may be seen by surface detail. This means that pedestrians may be clearly recognized. It means one footcandle or more upon the roadway; it may mean 100 lumens of generated light per running foot of roadway. While it might be desirable to provide similar illumination in residential sections and on interurban highways, this cannot be justified economically today, and recourse must be had to discernment by silhouette.

(2) Silhouette vision is produced by a lighted-roadway background, the obstruction itself being less bright. This is modified by the physical character of the road surface, whether rough macadam, concrete, rain-smooth mirror-like surfaces, etc. Bear in mind that widely spaced illuminants do better when mounted high over the traffic lane, not on the curb-line.

(3) A diffusely reflecting concrete highway may provide good silhouette vision on a dry night, but seems almost totally black on a wet night when reflections are specular. For good visibility under all conditions of weather, the line of overhead lighting units should be closely above the line of the traffic, and on the outer arcs of curves.

(4) Shadow discernment is of value at some sharp curves or at masked intersections.

Characteristics of Light Sources

Good overhead street lighting, especially on interurban highways, seeks equal illumination all along the road and the avoidance of glare, which can be worse than darkness!

There are two kinds of glare: blinding and discomforting. The first remedy for both classes of glare is to mount the lights as high as can be economically justified. Then regulate the light beams in proportion to the ratio of spacing to mounting height. Where the spacing is roughly five times the height, the maximum candlepower of the unit should be approximately 22 degrees below the horizontal. Where the spacing is eight times the mounting height, the maximum candlepower should be about 13 degrees below the horizontal. On a medium traffic thoroughfare‡ it is not uncommon to find a mounting height of 25 feet and a spacing of 200 feet, equivalent to a spacing ratio of eight.

Height and Spacing

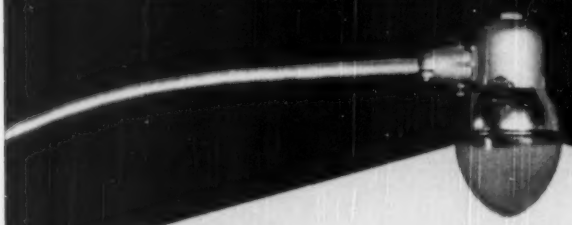
Heights of 30 to 35 feet rather than 25 feet tend toward more even distribution and much reduced glare, and permit the use of larger and more efficient lamps. Spacing ratios of 8 to 1 should not be exceeded for medium- and light-traffic routes and perhaps 5 to 1 for business districts.

The generated lumens of a lamp should be directed to the street surface. In business districts, it is possible to utilize some 75% of the bare lamp (lumen) output, and some of the light can be justifiably spread over building facades, sidewalks, etc. Where it is desirable, as on the interurban highways, to confine the light to the surface of the street, a utilization of 50% is attain-

* From Chapter 35 of *Highways In Our National Life*, published by Princeton University. The chapter is entitled "Visibility and Highway Lighting," by Samuel G. Hibben, Director of Applied Lighting of Lamp Division, Westinghouse Electric Corporation, Bloomfield, N. J.

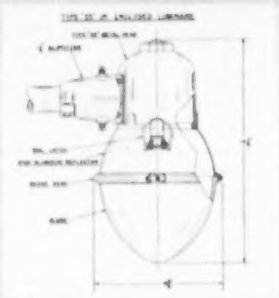
‡ Medium traffic is 500 to 1,200 vehicles per hour; light traffic is 150 to 500; and heavy traffic is 1,200 to 2,400.

JUNIOR LUMINAIRE
By
JOSLYN



IDEAL FOR RESIDENTIAL AREAS

BEAMS THE LIGHT FOR GREATEST EFFECTIVENESS ON THE STREET



FOR RESIDENTIAL STREET LIGHTING

The Joslyn Junior Luminaire will give you a compact, low cost, glassware enclosed light source embodying the same advantages of scientifically controlled illumination available with larger, more expensive luminaires.

1. For 1000 and 2500 lumen incandescent lamps.
2. Available now in I.E.S. Types IV & V Light Distributions.
3. Slip-Fitter or Top-Mounted Cast Aluminum Head for Inner Wiring.
4. Highly polished Alzak* Spun Aluminum Reflector to which globe is attached by means of the highly successful Joslyn wedge band construction.
5. With W.P. Series, D.P. Series Receptacle, or Mogul Multiple Socket (with standard head) or with Medium Multiple Socket (with smaller head as shown above).

*Mfg. under Aluminum Co. of America Patents.

Branch offices in principal cities

THE JOSLYN CO.
THE SOUTH EAST JOSLYN CO.
SOUTHERN JOSLYN CO.
JOSLYN SOUTHWEST CO.
JOSLYN PACIFIC CO.

JOSLYN MFG. AND SUPPLY CO.

Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

able, although the present average in this country is nearer 25%.

In extensive highway illumination, it is present American practice to employ the series system of power distribution, which means that a single wire loops out from a power station and connects several dozen to several hundred lamps in the same series circuit. Tungsten filament lamps designed for series burning operate at a relatively high current (up to 20 amperes) and low voltage, and are decidedly more efficient than multiple burning lamps of comparable wattage. The voltage of the loop or circuit is the sum of the lamp voltages connected in it. On the other hand, multiple circuits are frequent in business districts and in many residential sections, and a careful cost analysis should be made of the system which is preferable.

Costs of street and highway lighting are not easy to analyze since they include fixed charges, power, and maintenance. The capital investment in a highway lighting unit (pole, fixture, all electrical fittings, and power-supply accessories) may be on the order of $200. Fixed charges suggest careful analyses of the basic costs of equipment; and far too frequently the major cost has been in the use of over-elaborate pole bases and ornamentation, or monumental supports with ridiculously small light sources at the tops. Studies of operating costs show that lamp renewals and glassware breakage often cost more than the electric energy. Reducing the frequency of burn-out replacements is highly advisable where remote patrolling is necessary, or the mounting is high. For this reason, attention is being given to high-intensity mercury lamps that tend to have about three times the life of corresponding filament-lamp sizes. The 250- and 400-watt mercury lamps now average better than 4,000 hours of burning life, or roughly one year's service.

Peak of Traffic Fatalities

Even though the vehicle-miles during dark hours are very much less than in the daytime, night fatalities are almost double the day fatalities. The peak of traffic usually occurs between 5 and 6 p.m., and as traffic density declines after that hour there is a normal expectancy of decrease in traffic deaths in proportion. The facts, however, disclose that the peak of traffic fatalities is usually between 7 and 8 p.m., and remains high until about 1 a.m. This situation is largely caused by poor visibility and poor lighting.

Space Runway Lights Closer

AIRPLANE speeds and turning radii are increasing, traffic densities are going up, and pilots have less time to look for lights and must see them at greater distances. It is now the time to start bringing the lighting of non-instrument runways up to a useful level.

We cannot ignore the obvious fact that a DC-6, Constellation or Stratocruiser, has a larger turning radius and higher approach speed than a Piper Cub, and thus requires more candlepower for circling and line-up.

Runway lights fall into three classes —low intensity, medium intensity, and high intensity. The low intensity lights are generally flush with the runway at runway intersections and similar areas where elevated lights cannot be used.

At many airports, 30- and 45-watt lamps are used in the medium-intensity lights. In such cases, 45-watt lamps should replace the 30-watt lamps in runway lights with clear lenses, and 100-watt lamps should be used with green lenses. Although airport lighting engineers should change their thinking from clear-weather conditions to weather conditions of ¼, ⅛, 1/16-of-a-mile visibility, increased candlepower alone is not a solution for making more lights visible to the pilot. Reduced spacing, at least at the approach end of the runway, is a far more sane answer.

As evidence for this point, in visibilities of ⅛ of a mile, a pilot can see 10 lights that have a rating of 30,000 candlepower when they are placed 100 feet apart. Even if the rating of each light is raised to 180,000 candlepower, the pilot will be able to see only 11 lights if the 100-foot-spacing is maintained. Consequently, airports should space high-intensity lights 25 feet apart for the first 200 feet of runway length, 50 feet apart for the next 800 feet, and 100 feet for the remainder of the runway.

W. A. PENNOW
Aviation Lighting Engineer
Westinghouse Electric Corp.
305 Fourth Ave., Pittsburgh 30, Pa.

Light of Love

By the Associated Press.

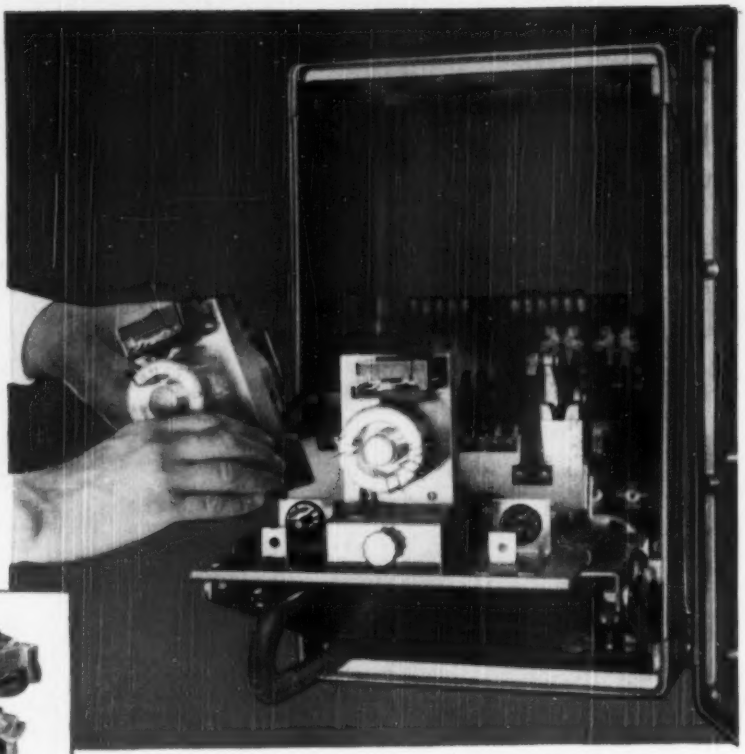
TAMPA, Sept. 21.—City officials have been asked to install a street light on Love Ave. Residents complained it is used more for love than it is for an avenue.

—FROM THE NEW YORK WORLD-TELEGRAM AND SUN OF SEPT. 21, 1950.

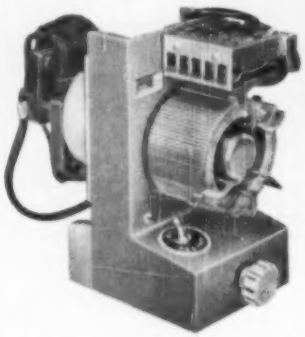
Mercury-Vapor Equipped Commercial Building in Chicago

This retail business building owned by A. G. Kanelos, at the intersection of Lawrence and Milwaukee Avenues, Chicago, is equipped with mercury-vapor street lights. The luminaires distribute about 10 footcandles on the storefront and sidewalk. Their purpose is to attract night shoppers to the building, which houses seven retail stores. Mounted 18 feet above the pavement on a parapet which extends 4 feet out from the building front, the 12 fixtures are General Electric Form 109's equipped with 15,000-lumen mercury lamps. They are spaced only 12 feet apart for maximum light intensity. Installation was made by the Berry Electric Company of Chicago.

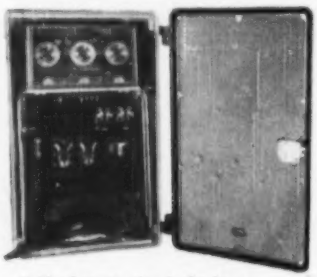
The Controller that grows with traffic!



You can convert a one-dial controller to two dials by just plugging in the second dial unit and its latch relay.



Each dial unit has its own synchronous motor, timing gear, dial contacts and timing keys.



Unitized construction is the key note of this new design controller—thus major parts can be readily replaced for servicing in a matter of minutes.

This is General Electric's new expansible controller. Buy it as a one-dial unit. Use it with or without interconnection. As traffic volume builds up or as conditions change just plug in a second dial unit—or a third. That's how easy it is to keep your traffic-control system growing with traffic!

This new traffic controller is a finer piece of equipment mechanically and electrically—as well as completely new in design. It greatly simplifies your planning and buying; it increases reliability and cuts maintenance. Let your nearest G-E Apparatus Sales Office or traffic control distributor show you how. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Relighting in Cambridge Springs And North Girard, Pa.

THE FORMER borough-owned street-lighting system in Cambridge Springs, Crawford County, Pa., and the North Girard, Erie County, Pa., system will soon be modernized by the Pennsylvania Electric Company.

The extensive Cambridge Springs program will increase lighting in the business and heavy traffic areas by 400%, and will substantially improve the lighting in the residential districts. The utility will replace the 250-cp lights with 145 modern luminaires. The 129 lamps now in use have a total rating of 322,500 lumens, while the new lights will provide 523,000 lumens. There will be 8 lamps of 10,000 lumens, 18 of 6,000 lumens, 25 of 4,000 lumens, and 94 of 2,500 lumens.

The wood poles and standards which were owned by the borough will be replaced by selected wood poles to make a considerable improvement in the appearance of the business section. The luminaires will be suspended on 6-foot single-curve upsweep ornamental brackets in the business district. Mounting height will be 25 feet from the street surface to the light center. Luminaires in the traffic areas will be mounted on 4-foot, 6-foot, and 12-foot single-curve upsweep brackets at a height of 20 to 25 feet. Four-foot single upsweep brackets and 12-foot mast arms will be used in the residential areas with mounting heights of 20 to 25 feet.

The North Girard installation, completed in November, will increase the illumination on the streets by 300%. The present seventy-three 800-lumen lamps will be replaced by six 600-lumen lamps and ninety-five 2500-lumen lamps. Modern fixtures, relocation of lights, and other improvements are included in the project at North Girard.

Street Lighting for Housing Developments In England

ALTHOUGH street lighting has become so important that within recent years engineers have devoted considerable time and thought to it, many of today's installations in England are very poor, according to T. H. Carr in an article in the British publication, *The Municipal Journal*, for August 18.

Differentiation in Street Lighting Urged

He points out that street lighting for housing estates or developments do not fall within the category of traffic routes, and the type of lighting adopted there should be clearly different. In fact, there should be a distinct and easily recognizable difference between the levels of lighting adopted for each group of streets.

Many roads on housing estates are unlikely to become of importance as thoroughfares for vehicular traffic, but sometimes certain portions may ultimately develop into traffic routes.

The recommendations given for these and other Class B streets are as follows:

Mounting height 13 to 15 feet
Spacing average 120 feet; maximum 150 feet; where economically practicable, 100 feet
Power of luminaries between 600 and 2,500 lumens per 100 linear feet of street

The lighting to be adopted must be carefully chosen, otherwise criticism is sure to be forthcoming. The choice will be made from tungsten lamps, mercury-vapor lamps, and sodium lamps.

The equipment should be designed as far as practicable to harmonize with the amenities of the district. The designs of many poles have been criticised, says Mr. Carr, and care is required to select types which are at least pleasing to the eye. The Royal Fine Arts Commission have this matter under consideration, and some improvements can be expected in future designs. Both steel and concrete standards have been used, with the general trend toward concrete, which does not require painting.

Variations in Fittings

Fittings vary considerably, and it seems that each manufacturer has tried producing designs to meet almost all conditions. An enclosed refracting type of fitting is popular. It has a special refracting band which, while providing a definite main beam up and down the road, allows a reasonable amount of light to be made available at the sides of the luminaires for lighting frontages.

Public Lighting Aesthetics in Europe

A perfect adaptation to the particular needs, this candelabrum in Budapest is tall but not unsightly. Here a clever design allows for increased height to harmonize with the towering surroundings while the general impression is one of sinewy beauty.

Adaptation to the urban scenery is the keynote here. The luminaire and its standard should be in harmony with the type of street or place it is intended to illuminate, as is this style candelabrum in the Place Stanislas in Nancy, France.

Sobriety of the customs is important in this day of standardization. This Budapest street lighting unit, although it contains decorative iron work, is simple in design and blends well with any background.

At left, a tubular concrete monotube illustrates how complicated forms have been avoided in the street lighting of Berne, Switzerland. Another point to note here, wherever possible, the color of equipment should match the surrounds. In the center picture, the number of lamp posts along the sidewalk is reduced to a minimum where poles are attractively grouped as they are in this six-tube candelabrum in Turin, Italy. However, proper height of the light source must be maintained for good light distribution. At right, a close relationship should exist between the lighting service and the pole positioning. This installation in Paris, where the lighting units are an integral part of the fence, shows careful planning regarding lighting requirements, maintenance, and proper spacing.

A page from *Illuminating Engineering*, August 1950.

Joe PRISMO
SAFETY MAN!

When Joe Prismo guides the way roads are safer because the range of visibility of his safety marking is far greater. Prismo has made safety marking devices and traffic life-lines easier to apply and more economical to maintain. The long lasting combination of a hard sealing plastic binder and crystal clear, perfectly round Prismo Spheres minimizes wear and too frequent repaintings. *Neither heavy traffic nor continued bad weather can dim Prismo's bright signal.*

The efficiency and long lasting qualities of Prismo products are due to a never ending program of research and improvement by engineers of long traffic safety experience. It is their know-how and unstinting determination to produce the most efficient reflectorization process, that has made Prismo Lifeline more brilliant and longer-lasting than any other reflectorization method.

It's your Budget's BEST BUY!

The SPHERE of SAFETY

PRISMO SAFETY CORPORATION

HUNTINGDON, PENNA.

Traffic Control and Facilitation

Report of Annual Meetings of Municipal Signalmen and Traffic Engineers

Part I

Fire Alarm Systems, Traffic Control, Street Lighting, Civil Defense discussed at 55th Meeting of the International Municipal Signal Association, New York, N. Y., September 18-21

NEARLY all cities with a population of 25,000 or more now have fire-alarm systems, and a number of these are interconnected with as many as 27 municipalities, according to Frederick B. Philbrick, President of the Gamewell Company. Mr. Philbrick said that fire chiefs generally are opposed to the barring of sirens on apparatus and cars, as was done for civil-defense reasons in New York City. Without sirens, the travel of vehicles is cut to half speed in answering alarms. For attack warning, he urged the use of air horns. These are distinctive in tone and can be installed anywhere.

Needs of Traffic-Signal Maintenance

Donald M. McNeil, Traffic Engineer of Pittsburgh, Pa., reported that there are in the nation 85,000 street intersection signals of a value of $200,000,000 including signal equipment and interconnecting cable. The annual maintenance cost for both normal maintenance and replacement of worn-out equipment costs about $45,000,000 annually.

Pittsburgh has a population of 700,000 and an area of 54.5 square miles, with 886 miles of paved, and 435 miles of unpaved streets. To date 390 intersections are signalized, and 220 are protected with electric stop signs.

Eight electricians daily inspect each piece of equipment and perform minor maintenance, such as replacing burned-out lamps, fuses, and miscellaneous items, as well as clean each piece of signal equipment twice yearly. Other electricians specialize in the maintenance of the control mechanism and heavy construction work involving replacement of worn-out equipment.

Both half-ton utility trucks and heavy-duty line trucks are used in the maintenance work.

Studies have indicated that the equipping of these trucks with two-way telephone communication service will result in a saving of time of 20%, or an annual saving of approximately $7,500 annually.

Each piece of the 600 pieces of control equipment is serviced in the shop at least once a year. All control equipment is jack-mounted, which facilitates this work. Daily time sheets and records are kept of all maintenance work performed.

Mr. McNeil made these five important recommendations:

1. That the International Municipal Signal Association develop a uniform system of maintenance and cost-keeping records.

2. That the International Municipal Signal Association develop standard truck bodies for various work, such as heavy construction and line trucks and general maintenance trucks.

3. That during the year 1951, members of the International Municipal Signal Association study the traffic-signal lamp to determine the best policy for maintaining the same. This study should include the 4,000-hour lamp, the 2,000-hour lamp, the periodic, systematic replacement of the above lamps, the double filament lamp, or whether the ultimate solutions lie in providing double red sections of the traffic-signal light.

4. That the industry develop a school for training in electrical maintenance performance, including in its study traffic-signal maintenance performance.

5. That the industry develop a standard work and test bench designed for efficiency, maintaining various types of control equipment.

The simplicity, reliability, and versatility of single-dial traffic-signal controllers with synchronous motors were extolled by Fred J. Meno, II, Senior Associate Electrical Engineer, Public Lighting Commission, Detroit, Mich. He named 10 features of the controllers as advantages: for additional circuits, as a low-voltage indicator; ability for part-time manual operation; automatic operation by clock switch for school crossings; flashing amber for main street and red for cross street; fire-engine control; manual push-button control; pedestrian actuation by push button; offsets for interconnection; and adaptability for special uses, as when a railway or bridge form part of the intersection.

Virtues of the multi-dial, traffic-signal controller were presented by Walter E. Schwanhausser, General Electric Co., West Lynn, Mass. Use it where there are predictable changes in traffic flow. When the peak flows differ in characteristic, use the 3-dial controller.

Significant Trends in Signs and Pavement Markings

Importance of the Uniform Manual on traffic-control devices was emphasized by Robert A. Mitchell, Chief, Bureau of Traffic Engineering, Philadelphia, Pa. Significant trends are to larger signs with larger letters, rounded instead of square letters, red letters and borders for no-parking signs, and green letters and borders when parking is permitted in a particular manner or for a limited time.

The value of pavement markings is that they do not divert the driver from the roadway. The word STOP should be installed or painted only at stop-sign installations. Paint specifications are not reliable; a pre-test with five gallons is the best method of selecting a paint. Philadelphia is thoroughly sold on reflectorized paint. Hundreds of types of permanent markers have proved disappointing. Such a marker is urgently needed.

Electric street lighting was born in Niagara Falls, N. Y., on Wednesday,

City Officials and Transit Management agree:

Electrics are good for Cleveland

I am pleased by the wonderful reception modern electric vehicles have been given by the transit riders in our city. They are helping us relieve traffic congestion and its many resulting evils.

Thomas A. Burke,
Mayor

Modern electric vehicles are planned as the backbone of our system. Their large capacity, low maintenance costs and rider popularity make them ideal vehicles for our use.

Donald C. Hyde,
General Manager
Cleveland Transit System

Modern electrics — trolley coaches, modern street cars, modern rapid transit — correctly applied, can do a great job for your city, too.

ARE THESE CONDITIONS TRUE IN *Your* CITY?

Your best stores are suffering from too many cars, too few customers?

Automobile traffic is choking your city to death?

Effective mass transportation should help today's cities solve the major problem of traffic congestion, and resulting blight conditions. Our engineers will be glad to assist you with your planning problems. Write Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

GENERAL ELECTRIC

July 2, 1879, according to Adin W. Chase, City Electrician. The first installation consisted of 16 arc lights. These were added to until 1912, when a decorative lighting system three miles long was installed on Falls Street. It consisted of 370 arc lamps mounted 171½ feet high and 190 feet apart.

In 1939, the frequency was changed from 25 cycles to 60 cycles, and 1,023 magnesite arcs were replaced by incandescents, as described on page 101 of THE AMERICAN CITY for August 1939. The latest installation, in 1950, covered two miles of Pine Street, where 21,000 mercury-vapor lamps were installed at a mounting height of 30 feet.

In addition to 150,000 municipal employees, civil defense in New York City will require 200,000 to 300,000 volunteers, according to Arthur W. Wallander, Director, Civil Defense, New York City. Mutual-aid arrangements will embrace the states of New Jersey and Connecticut, as well as the metropolitan communities. The core of this volunteer system is the utilities and communications. The New York Board of Estimate has made an initial appropriation of $1,800,000, of which 14% is earmarked for communications equipment.

Part II

Bus, Truck, and Car Terminals, School Crossings, and Traffic Signals discussed at the 21st Meeting of the Institute of Traffic Engineers, New York, N. Y., September 24-27

IN MORE ways than years, the Institute of Traffic Engineers came of age at its 21st annual meeting at the Commodore Hotel. The quality of attendance was high and many called it the Institute's best convention.

The first technical session was opened by Acting Mayor Vincent R. Impellitteri, who had been so competently briefed that he took some of the wind from the speakers who followed. The first of these was Lee C. Webb, Supt., Port of New York Authority Bus Terminal. This project, which starts business on December 15, is already famous, not only for its measurements of 800 by 2,000 feet, but also for the stimulating fact that 58% of its operating cost will be paid by concessions. One gathers that its design matured slowly and with almost infinite pains. Because high costs have overburdened other bus terminals, the entire concourse is assigned to concessions. The terminal is fully escalatored. Take one to the second floor—and there are still no buses, for here the 60,000 suburban commuters (20,000 in one rush hour) are sorted from the intercity passengers. Suburban buses reach the third floor by ramps; peak departures are about 570 compared with 380 in the city before the terminal was opened. When greater capacity is needed, the top floor, now used for parking, will add 40%.

Trucks and Automobiles

As every building in a community is served by trucks, don't limit truck sizes or hours of operation, was the message from D. L. Sutherland, President of the Middle Atlantic Transportation Co., Inc., New York. The company handles 40,000 freight bills (deliveries) per month, averaging 626 pounds for the 8,000 to 9,000-pound truck loads; and each stop unloads only 1.54 shipments. He urged that everything possible be done to reduce automobile congestion caused by curb and double parking. Perhaps his most significant remark was that half a truckman's time is spent in getting to the right man to receive a shipment.

Out of his 30 years' experience in building and operating garages, Fred W. Moe, president of the Ramp Buildings Corporation, New York, discussed the advantages and defects of the six types of ramp design. He conceded that all ramps take space, but that elevators are expensive, slow, and have breakdowns. He recommended circular ramps for large areas, straight ramps where there are long dimensions, U-and-arc-shaped ramps for capacity. Today's cars are 1 foot longer and wider and 1 foot lower than in 1920, and require parking stalls 8 feet wide against the former 6½ feet. He said that, until recently, zoning ordinances discouraged garages where they were definitely needed.

Though only 1% of traffic accidents occur at school crossings (during school hours), these locations are properly accorded a big place in traffic-safety consideration, said George W. Howie,

Location of New York's new bus terminal, to open in December.

PARK-O-METER

FIRST all ways always FIRST

first

The world's first parking meter installation was in Oklahoma City in 1935. It was a Park-O-Meter installation. The success of this pilot installation ushered in a new day of scientific traffic control for cities all over the United States . . . in Alaska . . . and in Canada. And *every day* more cities are choosing Park-O-Meter . . . *there must be a reason!*

first

Park-O-Meter pioneered the features that make metered parking a *must* in traffic control. For instance, these: Sealed precision timing unit . . . 50-yard visibility from both sides . . . complete convertibility permitting either cumulative or conventional reset . . . selective multiple-coin operation . . . visual trouble signal . . . slug-protector windows . . . automatic coin dumping to speed collection . . . a completely integrated unit engineered from the ground up.

first

Park-O-Meter continues to prove itself the first choice of modern American cities . . . *and there is ample reason.* Park-O-Meter offers more modern features than any other meter. It is more adaptable to changed and changing needs. It is accurate . . . never cheats the public . . . never cheats the city. Study Park-O-Meter before you obligate your city for parking meters.

If your city has no system of metered parking . . . if yours is an obsolete or inadequate system . . . if you have any unsolved parking problem . . . or if you have an off-street parking problem, our traffic consultants will cooperate in finding an answer without cost or obligation on your part.

Ask for descriptive literature today . . .

Magee-Hale
PARK-O-METER COMPANY
Commerce Exchange Bldg.
OKLAHOMA CITY 2, OKLAHOMA

MORE THAN 15 YEARS OF KNOW-HOW . . . MORE THAN 650 CITIES Know WE KNOW HOW

Traffic Engineer, Cincinnati, Ohio. The police officer is the best protection. Where a push-button traffic signal is used, the timing should be mechanical, and while there is great variation in signs and markings used, all appear to be effective. It should be borne in mind, however, that cross-walk lines are not concrete walls. He recommended for study a new type of pentagon-shaped sign to warn of "pedestrians ahead."

New York City's Manhattan traffic-signal plan, fully described on page 141 of THE AMERICAN CITY for March 1950, was graphically demonstrated by Charles S. Michalski, Engineer of Traffic Design, who did so by means of a map with green and red pilot lamps for traffic signals timed in sequence identical to the full-scale project. He said that time-space diagrams had proved ineffective in selling the project to laymen. The capital budget contains an item of $493,000 for traffic controllers, of which 2,300 in all will be required.

The Flat Fare is a Ceiling

The author finds statistically that loss of riding, resulting from flat-rate fare increases, nullifies net-income increase. A "mileage" rate may be the answer

By A. W. BAUMGARTEN
Transportation Engineer
Ebasco Services Incorporated
New York, N. Y.

FOR SEVERAL generations, mass transportation has been the only feasible means to take people to and from congested areas economically. Though transportation strikes have caused the public, business, and political authorities to appreciate its necessity, its true functions still seem to be misunderstood by many.

Layman, businessman, and politician thinks he knows how mass transportation should be operated. Too many people think it should provide the equivalent of taxicab or individual service for five to ten cents, and make a profit, despite the fact that the increasing costs of operation, principally wages, have reduced transit income to a deficit in many of our cities during the last three years! Fare increases have not increased gross revenue sufficiently to overcome the rising costs. In fact, the loss of passenger riding, as a result of flat-rate fare increases, has almost nullified any increase in the net income except where services have been reduced to balance the drop in passenger riding. Such reduction of service caused further loss in riding. Much of this loss has flowed into more automobiles, adding to the problems of traffic congestion in our cities today.

The public use of mass transportation reached an all-time high in 1946, with 19,119,000,000 revenue passengers. This figure has been decreasing each year, and dropped to 15,251,000,000 for 1949, and will be about 14,000,000,000 for 1950. This is occurring in spite of the fact that general business activities have been increasing.

To visualize the trend changes that have taken place in public transportation, the chart here shows the year-by-year values of those factors related to the use of the service, and the economic results of the transit operations for the period between 1926 and 1949. The curves have been plotted to logarithmic scale so that the trend changes may visually be analyzed and compared in equivalent percentages. They are significant, and the future could have been predictable, had the public authorities and transit management studied these trends.

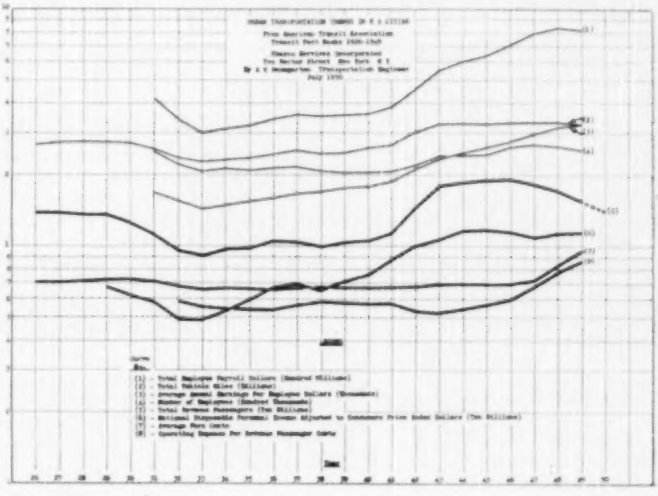
Comments on Chart

Trend Curve No. 5 shows the annual revenue passenger-riding trend for 1926-1949 and estimated for 1950. In searching for some national business or income index that would be comparable to the transit-riding factor, the writer found that disposable personal income (personal income after tax deductions), adjusted for Consumers' Price Index, was a close parallel to transit riding especially during the periods of general stability and *except as transit riding is affected by fare changes*. The population growth of cities has some influence on local transit use, but is not a noticeable factor in the total transit picture.

Curves No. 6 and No. 7 show the disposable personal income and average fare trends. Compare them with Curve No. 5 for total revenue passengers carried. Agreeing with disposable income trend to 1947, the transit-riding trend should have remained virtually constant during 1948-1949. It went down *because the average fare per passenger increased* 34% (from 6.97 cents to 9.32 cents) in the period of 1946 to 1949. The total revenue passengers decreased about 20% in the same period. With further fare increases this year, a further drop in riding will be seen. Even in cases of slight change in fare the effect is perceptible, such as the period of 1926 to 1929, when the average fare increased from 7.03 to 7.20 cents, or 2.4%, and revenue passengers decreased 2%.

Curve No. 8 shows the cost or operating expense per revenue passenger. The reasons for the increased cost of revenue-passenger operating expense are reflected in Curves Nos. 1, 2, 3, and 4 of the chart. It is obvious from the comparisons of Curves No. 7 and No. 8 that it was necessary to increase fares to prevent the economic collapse of the mass-transportation systems of the cities. The result of repeated *flat-rate fare increases* since 1946, however, did not produce the expected increase in gross revenues because of passenger-riding decrease as shown by Curve No. 5. Therefore, the question of a different method of fare increase is worth considering.

Instead of flat-rate fare increases, a more equitable and remunerative meth-



Houston ADVANCES WITH KARPARK

Vision — the vision of civic officials and leaders — has characterized every activity in the development of Houston's sound and gigantic growth. In selecting the parking meter for the city's comprehensive traffic control system, far-sighted officials made certain of avoiding the endless costs of impact breakage, vandalism, and frequent windings and repairs, by choosing the vast strength and utter dependability of the steel head KARPARK "Superior". For particulars about this, and other KARPARKS, write today.

THE WISE CHOICE

THE KARPARK CORPORATION -- CINCINNATI 6, OHIO

ALSO IN THE "FIRST FAMILY" OF PARKING METERS

KARPARK *Automatics*

Manufactured by The Herschede Hall Clock Company
— makers of America's finest clocks

od to increase passenger revenue would have been to introduce some form of mileage rate which would have retained the short ride at a reasonable and profitable fare. In the larger cities, the present average fare per route-mile is often too low to realize a revenue per mile equal to the operating cost. A zone system of fare adjustment which is feasible of collection would be more equitable and undoubtedly retain many of the short riders.

Gain in Gross Revenue

For instance, if we assume that the transportation systems had used a 2-zone fare system instead of the general flat-rate increases, the loss of revenue passengers in the first zone would be nil, and therefore, the gain in gross revenue would have been greater.

With an average fare of 7 cents—1946 average—for the first zone, and 12 cents for the second zone, including free transfers in the first zone, the statistical experience estimates for 1949 would have shown (1) total revenue passengers of 14,589,000,000, or 15.4% greater than the actual revenue passengers of 15,251,000,000 for 1949; (2) a result of approximately 1,375,000,000 fewer annual passenger-automobile movements in our cities, thereby reducing traffic congestion and demand for parking space; (3) an increase in the gross revenue for 1949 from $1,419,700,000 to $1,520,700,000, or about 7%; (4) a reduction in the average fare for 1949 from 9.32 cents to 8.64 cents—a reduction of about 7.1%; (5) that no increase in mileage operated is necessary with the zone system properly scheduled, which would reduce the operating expense per revenue passenger from 8.77 cents to 7.62 cents, or 13.8% less than the 1949 actual cost.

The combined results of the preceding advantages gained would be a decrease in operating ratio (operating expenses divided by operating revenue) for 1949 from 94.6% to 88.3%, or a net gain of 6.3%. This gain would have been sufficient to avoid the present financial difficulties of many transportation companies, and lessened the necessity for more flat-rate fare increases and the consequent loss of riders.

Traffic Gets the Right Time From 104 Denver Intersections

By HENRY A. BARNES
Traffic Engineer
Denver, Colo.

EMPLOYING a revolutionary combination of fixed-time-cycle and electronic traffic-control equipment, the City of Denver, Colo., has launched a sweeping $125,000 modernization of its entire downtown network of traffic signals and controllers.

The new system eliminates manual adjustments and guesswork in timing signals to handle irregular traffic fluctuations. The General Electric Type F traffic controllers, at 104 intersections, are supervised electronically by a master cycle selector in Denver's City and County Building, and individually connected to the controller.

Replacing a 20-year-old installation operated by a single General Electric fixed-time controller, the new system uses any cycle timing between 40 and 125 seconds. This timing, and the red-green light percentages are electronically adjusted to meet downtown traffic counts which register automatically through under-street pressure pads at four representative intersections.

Every six minutes, the electronic master selector adds up this traffic count, computes the proper timing cycle and red-green splits to handle the traffic flow, and then automatically adjusts the 104 individual controllers by varying the voltage and frequency on their synchronous-drive motors. Adjustment of the cycle is limited to a 5-second increment every six minutes to avoid sudden large changes in cycle timing.

Offsets on the controller dial units also can favor traffic entering the downtown section during morning rush hours, and outgoing traffic in the evening. In addition, percentage splits of red and green can automatically reverse between main and side streets as traffic flow dictates. In fact, automatic traffic control is provided at all times, regardless of storms, movie rush hours, or parades. The new system also provides a pedestrian walk period with traffic stopped and pedestrians moving in all directions.

The central control panel will eventually accommodate dial units for 155 intersections, and the remote-control feature ultimately may be expanded to 250 intersections.

With a system geared to the control of traffic rather than that of just operating lights, this tourist and shopping center for a 1,500-mile area is measurably relieving its crippling downtown traffic congestion. The program will require 1½ years for completion, proceeding toward that end as equipment arrives.

New Techniques for Albuquerque Traffic

ALBUQUERQUE, N. MEX., has grown from a population of 35,000 in 1940 to about 100,000 today. There is three times the volume of traffic using the same old streets.

To find out where we stood and what to do, an Albuquerque Highway Transportation Survey was made by joint efforts of the U. S. Bureau of Public Roads, the New Mexico State Highway Department, and the City of Albuquerque. The Automotive Safety Foundation, Washington, D. C., directed the survey and wrote the report. Among other things, it was found that 15% of the total street mileage carries over 75% of the traffic. A third of the traffic is on 3% of the streets. In the business district, no matter how hard you drive, you average 7 miles an hour.

One of the recommendations was for an arterial system of 141 miles or 25% of the streets in the Greater Albuquerque area. Its purpose is to increase circulation to and in the business district.

An important lesson we learned was the need to apply traffic-engineering techniques and devices purposefully. Almost anyone can paint a traffic-lane line on a pavement. The engineering aspect is to paint it where it achieves a traffic-facilitating purpose. An electrician can install a traffic signal. The engineering job is to place it where it belongs, time it, and coordinate it in relation to the adjacent intersections. With engineering, not only is traffic moved faster but this end objective is attained with fewer facilities.

An extensive one-way street system is another engineering proposal, which is predicted to increase the street capacity 20 to 50%. These one-ways extend far enough beyond the business district to enable drivers to avoid this district, which 46% of them want to do.

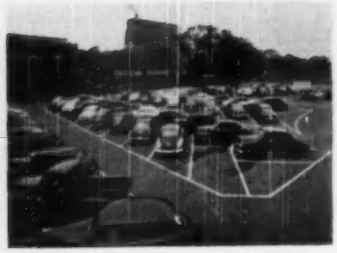
A close parking inquiry showed, in general, sufficient space in the central district if full utilization were made of it. The deficiencies in 1949 were 1,200 spaces with 3,000 parkers then using off-street parking space. Open-deck ramp garages of 450-car capacity were recommended. Ultimate observable needs are for six garages and two lots.

Some of the perception and quality shown by this competent study needs to be permanently operative in any city the size of Albuquerque. Consequently, the employment of a full-time traffic engineer is urged. He is almost essential in the practical working out of a comprehensive traffic plan.

COL. ERNEST W. EVERY, *Chairman*
Albuquerque City Commission
Albuquerque, N. Mex.

Dual-controlled curb parking in downtown Lansing.

Lansing metered lot No. 1—106 vehicles.



Lansing metered lot No. 3—116 vehicles.

Report from Lansing... on-street or off-street, DUALS "CLICK" WITH US!

Lansing, capital of Michigan (Abrams Aerial Survey Corp., Lansing, Michigan).

NO wonder Duals are the 9-year choice at Lansing, Michigan . . . Beginning with 616 in 1941 . . . 1,568 today . . . Lansing's Duals have shown a *continuous* record of reliable performance, low maintenance, and substantial revenue earmarked to benefit the city's motorists.

For example, this revenue not only covers the entire expense of the city's Traffic Engineering Division, but has financed the purchase of 5 off-street parking facilities, has so far paid for new meters for 3 of these lots plus all the additional meters needed for extended curb parking control. During 1949, 1,292 Duals averaged $98 per meter, producing a total revenue of $126,548 for the year.

It's beneficial, long-range performance like this that makes Duals preferred equipment in hundreds of cities coast to coast. Better get *all* the facts on Duals' many advanced operating features. Send for Bulletin DU-504 for on-street parking; Bulletin DU-505 for off-street parking.

THE DUAL PARKING METER COMPANY

A subsidiary of The Union Metal Manufacturing Company

Canton 2, Ohio

. . . YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Louisiana Legislative Apportionment

LEGISLATIVE APPORTIONMENT IN LOUISIANA—*By Emmett Asseff. Bureau of Government Research, Louisiana State University. 96 pp. 1950.*

This survey of the problem of establishing a fair distribution of representatives among the several parishes and senatorial districts of the state was prompted by current interest in constitutional revision in Louisiana. It presents the history of apportionment and reapportionment in that state, as well as conclusions and recommendations. The Appendix gives population and ratio figures, present and suggested.

Canadian City Growth Problems

PROBLEMS OF CANADIAN CITY GROWTH—*Community Planning Association of Canada, 56 Lyon St., Ottawa, Canada. June 1950. 28 pp. 50 cents.*

A useful and informative publication, which includes an essay on metropolitan administration and planning in Canada by Dr. Albert Rose and comparative data in graphic form on 14 major urban centers.

The acres of post-war urbanization around the major Canadian cities are shown by maps drawn to uniform scale which indicate the built-up areas as of 1945 and municipal boundaries as of 1949. Each map is accompanied by a chart showing the numeral quantity of post-war housebuilding in relation to the housing stock in use at the 1941 Census, and the dollar value of manufacturing plants built since 1944 in the same area.

The booklet is a substantial contribution to understanding on metropolitan planning problems.

New Income Tax Withholding Rates

WITHHOLDING INCOME TAX FROM WAGES—*Municipal Finance Officers Association of the United States and Canada, 1313 East 60th St., Chicago 37, Ill. Special Bulletin 1950 E. Oct. 1. 12 pp. 50 cents.*

Duties of state and local governments with regard to withholding income tax from wages are included in this bulletin, together with tables showing the new withholding rates under the Revenue Act of 1950 which apply to all wages paid on or after October 1.

Planning Proposals For Cambridge, England

CAMBRIDGE PLANNING PROPOSALS, 2 Vols.—*By W. Holford and H. M. Wright. Published by the Cambridge University Press. Vol. I, 102 pp. Vol. II, 56 pp. of maps and plans. 1950. $5.50.*

Volume I of this Report to the Cambridgeshire County Council gives detailed proposals for road development, general development (including population studies and housing recommendations), development of the University and the Colleges, and development in the center (comprising studies of commercial trends and probable commercial building needs). These studies are supplemented by numerous tables at the end of the book.

Volume II is composed entirely of maps and plans for Cambridge and neighboring land and villages.

Kansas City Centennial

CITY OF THE FUTURE—*By Henry C. Haskell, Jr., and Richard B. Fowler. Frank Glenn Publishing Co., Inc., Kansas City, Mo. 1950. 193 pp. $2.50.*

Despite its title, *City of the Future* deals almost wholly with the past. This history of the birth and development of Kansas City, published on the 100th birthday of the Missouri metropolis, is a fast-moving, easy-to-read narrative of a typically American city with its aggressive, sometimes ruthless, big men who had, none-the-less, a fierce sense of civic pride which made their city the great and prosperous center it is today.

British Local Government Problems

PROBLEMS OF LOCAL GOVERNMENT IN ENGLAND AND WALES—*By Frank Jessup. Cambridge University Press, 51 Madison Ave., New York 10, N. Y. 1950. 134 pp. $1.*

This little book presents a strong plea for the retention and strengthening of the local government system in Great Britain. The author does not hesitate to set down the difficulties and shortcomings of local government as they now exist, but he sees even more clearly the dangers of centralization and its tendency away from public influence and interest.

The last chapter deals with what is perhaps the most obstinate difficulty of all—public apathy. Among other reforms, the author asks for a far more lively and intelligent reporting in the press, an increase of the responsibilities of local bodies, and an extension of organized public relations by local governments.

The Rights of Labor Unions

THE RIGHT TO ORGANIZE AND ITS LIMITS—*By Kurt Braun. Published by The Brookings Institution, 722 Jackson Place, N.W., Washington 6, D. C. 1950. 332 pp. $3.*

This book—part of a more comprehensive study of the rights and duties of organized labor groups in the United States and selected European countries—deals with a right of labor which is the basis of nearly all its other rights: the right to organize.

The study gives a detailed analysis of similarities and dissimilarities in union, management, and governmental views in the individual countries. Reasons for the differences in governmental policies are made clear.

New Missouri Constitution Appraised

FIVE YEARS UNDER THE NEW MISSOURI CONSTITUTION—*By Martin L. Faust. Missouri Public Expenditure Survey, 209 Monroe St., Jefferson City, Mo. 1950. 28 pp. 50 cents.*

A significant report which concludes that never before in the history of Missouri government have so many constructive improvements been adopted and put into effect in the state's governmental system within such a remarkably short period of time. The accomplishments under the new constitution are outlined, including a section on how reapportionment of members of the state senate and house of representatives has been accomplished so that urban areas have fairer representation.

Community Welfare Planning

COMMUNITY WELFARE PLANNING AND ORGANIZATION—*By Walter L. Stone. Informal Education Service, Hanover, Ind. 1950. 40 pp.*

A discussion of the principles, forged out of practical experience, which should govern community welfare planning and development. Great store is laid upon citizen participation. The author declares, "Welfare workers must move from the realm of the pathetic to the realm of the heroic, from being repairmen to being constructors, from being observers to being participants in the process. They must assert boldly that the needs of the community are such and such and see to it that these needs are met."

Home Rule in Tennessee

HOME RULE FOR MUNICIPALITIES—*By Edith Foster Howard. The Bureau of Public Administration, University of Tennessee, Knoxville, Tenn. October 1949. 40 pp.*

The basic issues of home rule are explored in the pages of this booklet in order to provide Tennessee citizens with information concerning the merits of various home-rule provisions and possibilities. The report concludes that even though home rule has its difficulties, not insurmountable ones, a system of delegated local discretion is preferable to the one under which Tennessee cities now operate.

New Housing Directory

HOUSING AND REDEVELOPMENT DIRECTORY, 1950-1951—*National Association of Housing Officials, 1313 E. 60th St., Chicago 37, Ill. August 1950. 190 pp.*

This well-organized directory reflects the growth in number of local agencies concerned with low-rental housing and redevelopment since passage of the Housing Act of 1949. The "County and Municipal Agency" section of the book is expanded by some 46 per cent. While the 1949 edition carried listings for only 11 officially established redevelopment agencies, this edition lists 162 such agencies. Information and listings are given on national housing agencies and other federal agencies concerned with housing, and also unofficial housing agencies. A number of tables containing some basic housing statistics are presented at the conclusion of the volume.

Subdivision—Planning

HOW TO SUBDIVIDE, A HANDBOOK ON THE LAYOUT OF HOUSING DEVELOPMENTS—*By Harold Spence-Sales. Community Planning Association of Canada, 56 Lyon St., Ottawa, Canada. 1950. 36 pp.*

A lavishly published and illustrated handbook in three colors which is primarily aimed at real-estate developers to aid them in making their housing projects better planned and more attractive.

The handbook describes a series of steps that should be taken by a developer—from his first decision to undertake a project, through to the point when he is ready to borrow money and to begin building operations. These steps are demonstrated by reference to an actual locality on the Island of Montreal.

The handbook is divided into four parts. The first deals broadly with the effects of land enclosure upon subdivision. The second part deals with factors bearing on the selection of a site; the third illustrates the sequence of steps that should be taken in the preparation of a layout; and the fourth part deals with some financial aspects of land subdivision.

Plan for Rebuilding Washington, D. C.

OF PLANS AND PEOPLE—A STUDY OF THE PLAN OF WASHINGTON, D. C.—*Prepared by the Washington-Metropolitan Chapter, American Institute of Architects. May 1950. 64 pp. 50 cents.*

Prepared on the occasion of the 150th anniversary of the national capital, this report is an excellent review of the progress which has been made and the many difficult problems still to be overcome before Washington, D. C., can meet its housing and urban-redevelopment needs. The report is well illustrated, and written in language aimed at making the layman interested in Washington's opportunities. The authors conclude:

"In our nation's capital we should create a city that truly expresses the present state of our technical progress in other fields. If this is done we are confident that it will open up a new frontier for constructive achievement throughout the land."

Defense Against Atomic Weapons

WE ARE NOT HELPLESS—HOW WE CAN DEFEND OURSELVES AGAINST ATOMIC WEAPONS—*By William L. Laurence. The Promotion Manager, The New York Times, 229 West 43rd St., New York 18, N. Y. September 1950. 48 pp. 10 cents per copy.*

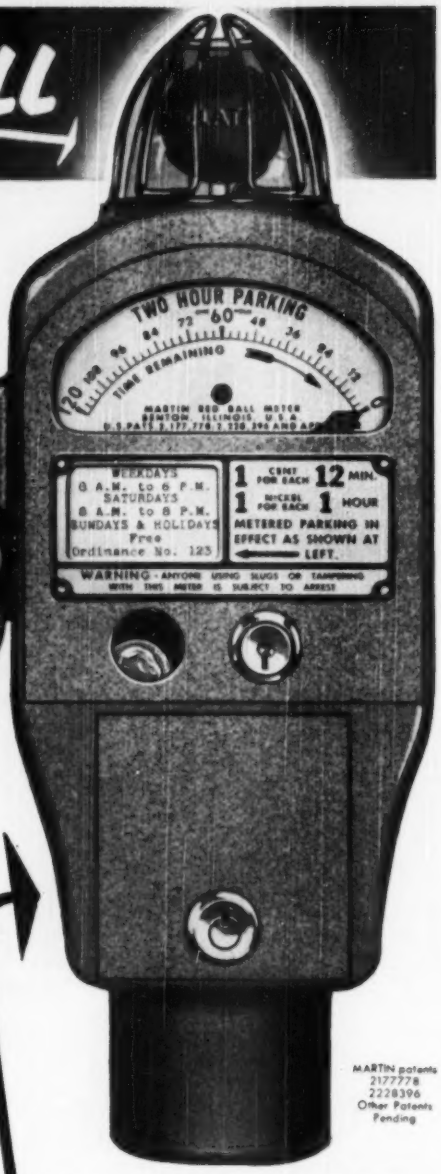
The contents of the official guidebook published by the government on "The Effects of Atomic Weapons" have been digested and translated into non-technical terms by William L. Laurence, probably the country's most outstanding science reporter and writer on atomic energy. This booklet is a reprint of a series of articles which appeared in August in *The New York Times*. The publication will serve as a great time-saver to municipal officials and civic leaders concerned with civilian defense. It should also prove useful for distribution to groups of volunteer civilian defense workers.

(*Continued on page 169*)

RED BALL

It's the Most Outstanding of All Violation Signals!

- **The Red Ball Pops Up When Time Runs Out!**
- **It Can Be Seen in ALL Directions, and from a distance of 500 feet!**
- **Cruising Traffic Men Can Spot It at a Glance!**
- **Parking Motorists Soon Learn that the Red Ball "Means Business"!**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TIME REMAINING
MARTIN RED BALL METER
BENTON, ILLINOIS, U.S.A.
WEEKDAYS
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SATURDAYS
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SUNDAYS & HOLIDAYS
Free
Ordinance No. 123
1 CENT FOR EACH 12 MIN.
1 NICKEL FOR EACH 1 HOUR
METERED PARKING IN EFFECT AS SHOWN AT LEFT.
WARNING - ANYONE USING SLUGS OR TAMPERING WITH THIS METER IS SUBJECT TO ARREST

—and that's JUST ONE of the Many Brand New **EXCLUSIVE** and **SUPERIOR FEATURES** *of the* "10 YEARS-IN-ADVANCE" **MARTIN RED BALL PARKING METER**

Here is a parking meter of which every city official and every citizen will be proud. Practically every detail of the MARTIN is completely New . . . Advanced . . . Superior! It will take in 20% to 33⅓% more money than any other meter . . . will require far less maintenance . . . one traffic officer can supervise five times as many streets as with other meters.

In developing the MARTIN, we asked 26 Mayors, 51 Municipal Engineers, 49 Police Chiefs and 350 motorists for new and improved parking meter ideas. The result is truly the greatest advancement you've seen in parking meter engineering.

MARTIN patents 2177778 2228396 Other Patents Pending

• • • • • *You'll Make Money If You* **TRADE IN YOUR PRESENT METERS**

Because the MARTIN does take in more money, and SAVES more money in maintenance costs, it is the most profitable of all meters. Ask about our "Trade-In" plan.

MARTIN RED BALL PARKING METERS

DIVISION OF THE J. W. MENHALL DRILLING CO., OIL PRODUCERS

BENTON, ILL., U. S. A.

Snow Removal

(*Continued from page 98*)

thus hastening the melting or "breaking-up" action.

3. Improved catch-basin operation. There is no freezing, nor any residue left on the streets.

However, to make sure that the salt would have no damaging action on the metal parts of cars, various salt admixtures have been developed. One is a polyphosphate-nitrate-nitrite mix made by National Aluminate Corp., Chicago, and known as Nalco 818-C[12]. This was used in Rochester, N. Y., under the direction of John Temmerman, City Chemist. His tests, using strips of metal mounted under car and truck fenders, showed that metal corrosion with salt and Nalco is the same as metal corrosion from ice and snow having no salt mixed with it. The original tests used a 2% mixture by weight. Later, this was lowered to 1%. In addition to Rochester, a number of other cities used Nalco 818-C during the winter of 1949. These included Albany, Binghamton, Elmira, and Jamestown, N. Y.; Jackson, Mich.; and Middletown, Ohio.

Use of Banox

Another corrosion-inhibitor for salt is the polyphosphate, Banox, made by Calgon, Inc., Pittsburgh, Pa.[13]. The first experiments with it were conducted at Akron under M. L. Davis, Director of Public Works. In the winter of 1949, more than 100 cities used Banox with salt. These included Kansas City, Baltimore, Lansing, Akron, Niagara Falls. One firm, Carey, offered pre-mixed salt containing 1% Banox.

Hudson, Mass., likes to use salt on pavements for light snows and freezing rains[14]. Superintendent of Street E. F. Morgan, Jr., applies it at the rate of one ton of rock salt per 5 miles of pavement with a Tarco Scotchman.

Binghamton, N. Y., also likes to use salt in its snow-removal work.[15] In 1944 Commissioner of Public Works W. J. Spellicy reported that he trained his snow-removal crews to go into action early and get the snow off while it is still soft. The crews go out when the snow is 3 inches deep. They scatter salt following the plows.

New York City uses rock salt at the rate of 0.25 pounds per square yard to dissipate 25% to 50% of the snow that falls[16]. As mentioned previously, the Department of Sanitation can flush the snow off if the temperature is right.

Fayetteville, N. C., to remove snow, uses salt on the streets, and then flushes the mealy snow off[17]. The practice was instituted by Fleet Hall, Street Superintendent.

In Newark, N. J., snows of a maximum of 4 inches are handled by salt[18]. When the snowfall is over 4 inches, John Flockhart, Street Cleaning Engineer, sends out the plows and then the salt spreader. The practice is to spread ¼-pound of salt per square yard of pavement.

The first year that City Engineer Royal Thompson included salt in his snow-removal schedule, he cut the cost of snow removal 20% and removed 20% more snow from the streets of Hartford, Conn.[19]. Snow removal costs ran $1,000 per inch of snowfall. Hartford has 200 miles of streets, 62 miles of asphalt surfacing, and 3 miles of portland-cement concrete pavements.

At Homestead, Pa., Harry Lewis, Borough Secretary, found that it cost less to buy salt and use it for anti-skid protection than to use free ashes[20]. Cinders require cleaning, and they clog sewers and catch-basins.

Radiant Heat for Snow Removal

Since the war there has been increasing interest in the use of radiant heat to keep roadways constantly clear of snow. In general, its use has been limited to certain applications on sidewalks and drives. However, in Klamath Falls, Ore., the State Highway Department has successfully used radiant heat to keep clear the approaches to an overpass[21]. The approach grades are 8% and the length is about 200 feet on each side of the overpass. In these stretches are 15,000 feet of ¾-inch wrought-iron pipe placed at 1-foot intervals. The pipe is laid in 30-foot panels. Hot water is supplied by a natural hot well located nearby. The well delivers water at 190°F to a heat exchanger. The coils, warmed by the heat exchanger, use water and antifreeze. The coils will melt snow at the rate of 0.1 inch per hour. G. S. Paxon, Bridge Engineer, is the designer.

Detroit also is employing radiant heat for certain snow-removal work.[22] In this case, however, electric panels are used to keep snow clear of a 500-foot ramp to a superhighway. Each installation is 98 feet long and uses 242-inch mesh on #14 galvanized-wire fabric 18 inches wide. This length was selected to form the interval between expansion joints. These provide 18 inches of ice-free path for each wheel. At the ends of the heaters are ¼-by-2-inch copper bar and terminal wires brazed to allow connection to the source of power. The elements are placed 2 inches below the surface of the concrete or 1¼ inches below the asphalt surface. The power input is 55 watts per square foot. The wires are dipped in insulating varnish. The circuits are 60 volts with a maximum drop of 0.3 volts per foot. The panels require 40 kw-hrs. per hour per 500 feet of ramp section. At 2½ cents per kw-hr., they cost $1 per hour to operate.

To get an over-all picture of the way that snow-removal work operates in various communities, we can profitably look at the work in summary. Here, for example is the way Hackensack, N. J., performs it[23].

Hackensack covers an area of 4.6 square miles and has a population of 30,000. It has 4½ miles of downtown streets requiring complete removal of the snow, 50 miles of residential streets to be plowed; 18 miles of rural roads requiring relatively little attention. The snowfall varies from 6 to 12 inches per storm. If less than 4 inches falls, no plows go out, and the work is restricted to sanding and salting the main intersections.

Hackensack's equipment includes:

- 10 International Trucks with Baker reversible plows
- 2 International Trucks with Baker one-way plows, large
- 1 Caterpillar grader with a Baker snow blade
- 1 Hough front-end loader
- 1 Sno-Go rotary loader
- 1 Caterpillar tractor with Trax-cavator loader
- 4 Gravely sidewalk plows
- 2 Highway Equipment salt and cinder spreaders

The actual snow clearing is performed by the Park, Street, and Sanitation forces. The Police Department controls traffic, moves parked cars, and uses sound trucks to warn cars off the street. Plowing is complete in 6 to 12 hours.

Hackensack, as can be seen, has selected the vital arterial streets, where the important 80% of the traffic travels, and keeps it completely clear. It then turns to the rest of the residential streets and keeps them open, and gives less attention to the occasionally used rural roads within its limits.

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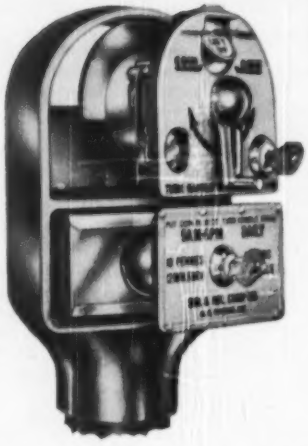
Announcing the sensational new damage-proof, wear-proof

MARK-TIME HURRICANE PARKING METER



With the most modern, most perfectly engineered head yet designed

It is with pride that the M. H. Rhodes Corporation announces the *new* Mark-Time Hurricane meter that eliminates breakage and possible malfunction. Years of continuous research have gone into the planning and production of this new meter that is the latest product of M. H. Rhodes Inc. engineering "know how". The *new* Mark-Time parking meter is designed for even greater simplicity and durability, while retaining the basic design that has already made Rhodes Mark-Time manual meters first in the parking meter field.

The Boston Traffic Commission was so impressed with the *new* Mark-Time Hurricane meter that it purchased 3000 Mark-Time Hurricane meters in the largest single order ever placed.

Amazingly Simple in Operation

These few operating parts in the amazingly simple manually operated Mark-Time parking meter give positive assurance that NOTHING can go wrong under normal operating conditions. Now, with the sensational improvements built into it, the *new* Mark-Time Hurricane head is as nearly damage-proof and wear-proof as scientific research and precision engineering can guarantee.

Manufactured and sold in Canada by
Ontario Hughes Owens Co. Ltd., of Ottawa, Ontario

MARK-TIME **M. H. RHODES, INC. HARTFORD, CONN.**

Toledo Plans to Control Smoke

A NEW ordinance, recently passed by the Toledo City Council, lays on the line the regulations it expects to be observed. Here are the pertinent features:

1.) No stationary fuel-burning equipment can discharge smoke with a density equal to that of No. 2, as measured by the Ringelmann Chart, established by the U. S. Bureau of Mines, for a period of more than four minutes in any half hour, or three minutes in any quarter hour, with the density equal to No. 2 but not greater than No. 3 unless breakdowns make that omission not reasonably preventable.

2.) No equipment can pass stack gases with dust exceeding 0.85 pounds per 1,000 pounds of gases, adjusted to 12% carbon dioxide content.

3.) No fumes may be discharged that are a detriment to the property of others, or that are a nuisance.

4.) At railroad roundhouses, equipment shall be installed so that steam can be raised in a cold locomotive without production of smoke of a density greater than No. 3 Ringelmann. Locomotives may not discharge smoke with a shade darker than No. 2 Ringelmann for more than one minute out of each quarter hour.

5.) New or reconstructed fuel-burning plants with more than 500 square feet of boiler-heating surface shall be equipped with smoke indicators, mirrors, or similar devices, so that the fireman can observe the top of the stack at all times.

Power to Seal Equipment

After three violations of smoke-density regulations, the city has, under the new ordinance, the power to seal the offending equipment until such time as an Installation and Operating Permit has been applied for and issued.

The regulations are to be administered by a Smoke Advisory Board consisting of 11 members, 10 of whom are appointed by the City Manager; the eleventh is the Air Pollution Engineer. An Appeal Board has also been established consisting of nine members appointed by the City Manager. The Air Pollution Engineer is appointed by the City Manager, and is a registered professional engineer, or licensed boiler operator or operating engineer.

In addition to the new ordinance, City Manager Arnold V. Finch reports that the Air Pollution Control Department has, within the last year, adopted a new enforcement policy, embodying the basic principles of salesmanship and public relations: the salesmanship for selling the ordinance and its restrictions to the operators of fuel-burning plants and boilers; and the public relations for keeping the citizens and the public-at-large abreast of new trends, developments, and improvements in the city's air-pollution situation.

Understanding Approach Successful

Past experience had shown that cold, impersonal enforcement of the ordinance had far less results than a considerate, understanding approach, hence, the adoption of the current policy. This method of handling the problem, Mr. Finch explains, combined with an improved ordinance, promises a brighter sky for Toledo's skyline.

Old Drums Into Trash Containers

KANSAS CITY, Mo., has discovered that a little paint and a new adapter turns an oil drum into a practical, simple trash receptacle. The adapter was developed by Clarendon Rea, Superintendent of Street Cleaning.

The adapter unit is designed to fit on the top of a 55-gallon steel drum. In most cases, cities purchase a considerable amount of material in drums of this type. One end of the drum can be cut out and the drum painted the desired color. With the addition of the adapter unit, it turns into a refuse container with a 6-bushel capacity.

Mr. Rea reports that the unit can be serviced easily. The adapter is simply lifted off the drum, the drum emptied, and the adapter replaced. The drum and adapter make a practical combination. An individual cannot tear his clothing on it, or cut or scratch himself. There is no door to lift or push. One merely drops the refuse into a convenient opening.

The public cannot confuse this container with a mail box, Mr. Rea points out. Paper cannot be blown from the unit, and a minimum of moisture falls inside.

Here is the Kansas City, Mo., refuse adapter, which turns a 55-gallon drum into a 6-bushel refuse container.

Taunton Sewerage

(Continued from page 89)

how it was to be paid for, the engineers drafted an advertisement to be run twice in the local daily newspaper. This was done at the suggestion of Mayor John F. Parker.

In this advertisement, it was stated that the costs for constructing and operating the sewerage works would be met by annual charges for use of the sewerage system and by an increase in the city's tax rate.

Annual charges for 1950 are as follows:

Charges for domestic and business services:

Single family service (or its equivalent) $16 per year; First additional family (or its equivalent) $8 per year; All in excess of first additional family (or its equivalent) $4 per year.

Charges for industrial and institutional services:

$240 per mg for establishments where total quantity for year equals or exceeds 400,000 gallons.

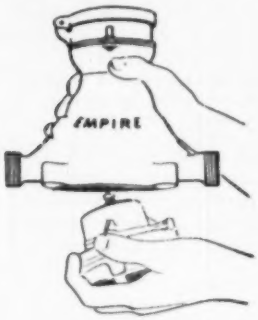
The effect on the city's tax rate because of this work amounts to about $1.40 per thousand valuation. This was based on a valuation of about $38,500,000.

The new sewage-disposal works was constructed under the direction of the Board of Sewer Commissioners: Edward J. Dahill, Chairman; Frederick S. Smith; Edward W. Kearns; and Frank L. Smith, Superintendent and Clerk. The firm of Fay, Spofford & Thorndike, engineers, of Boston and New York, designed and supervised the construction, with Ralph W. Horne as partner-in-charge, Frank L. Heaney as senior engineer, and Robert W. Butler as resident engineer.

The extension of main sewer, overflow structure, venturi meter chamber, and comminution chamber were constructed by V. Barletta Company, contractors, at a cost of about $100,000. The remainder of the sewage-treatment works was constructed by Gil Wyner Company, Inc., contractors, at a cost of $1,010,000.

ROCKWELL
EMPIRE
Oscillating Piston
WATER METERS

COST LESS TO REPAIR

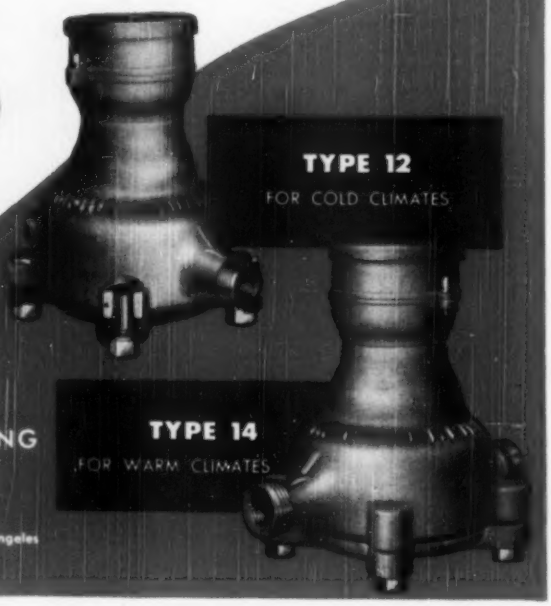


ALL INTERIOR PARTS ASSEMBLE AS A COMPLETE UNIT FOR INSERTION IN CASE

Here is the simple arrangement of measuring chamber and gear train parts in Rockwell-built Empire water meters. Note there are only three interior castings. They assemble without the use of any screws. Fitting is quick, positive. The assembled mechanism can be tested for its free running qualities prior to being bolted in the meter case.

Empire meters have fewer parts—better parts—exactingly interchangeable parts. Dismantling and assembly is quick, easy—to save time and money in meter shop operations. Thus the noted initial long life of these meters can be economically renewed to give many more years of uninterrupted service.

- SIMPLE CONSTRUCTION
- INTERCHANGEABILITY
- FEWEST WORKING PARTS



TYPE 12
FOR COLD CLIMATES

TYPE 14
FOR WARM CLIMATES

Rockwell MANUFACTURING COMPANY
PITTSBURGH 8, PA.

Atlanta Boston Chicago Columbus Houston Kansas City Los Angeles
New York Pittsburgh San Francisco Seattle Tulsa

Tennessee City-County Educational Relationships

CITY-COUNTY EDUCATIONAL RELATIONSHIPS IN TENNESSEE—*By George C. Howard, Jr. and Edith Foster Howard. The Bureau of Public Administration, University of Tennessee, Knoxville, Tenn. February* 1950. 32 *pp.*

This report discusses the variety of educational relationships between cities and counties and between special districts and counties. The study examines the nature of these relationships, extent and form of collaboration, costs, and other factors.

Civic Improvement Organizations

REPORT OF CITIZENS ORGANIZATIONS—*Civic Advisory Council of Toronto, 83 St. Joseph St., Toronto, Ont. April* 1950. *Mimeo. Appendices.* 34 *pp.* 50 cents.

Material is included in this report on civic improvement organizations in about 40 American cities. Information is given on their methods and principles of operation, committees, officers, etc.

The report was prepared for the Civic Advisory Council for the purpose of considering reorganization of the group. The appendices include: Constitution of the Civic Federation of Chicago; By-Laws of the Municipal League of Seattle; Constitution of the Citizens Council of Fort Wayne, and Chart of the Civic Advisory Council of Toronto.

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——Journal of the American Concrete Institute—20-Year Index. 1929-1949. American Concrete Institute, 18263 W. McNichols Rd., Detroit 19. 255 pp. $2. per copy. $1.25 to Members.

——1950 Conference Issue of *Municipal Finance*. Aug. 1950. No. 1. Official Magazine of The Municipal Finance Officers Association of the U. S. and Canada. 1313 East 60th St., Chicago 37, Ill. 68 pp. Subscription $1.50 per year, 50 cents per copy.

——No. 1 Step in Community Industrial Promotion. Boston 1950. Lincoln and Therese Filene Foundation by Industrial Development Reports, Boston. Mimeo. 11 pp.

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——Septic Tank Studies (Individual Sewage Disposal Systems). Technical Paper No. 14. May 1950. Housing and Home Finance Agency, Washington 25, D. C. Mimeo. Charts. 84 pp.

——The Stabilizing Budget Policy. Committee for Economic Development, 444 Madison Avenue, New York 22. 19 pp.

——Tentative Standard Specifications for Trisodium Phosphate. American Water Works Association Inc., 500 Fifth Ave., New York 18. Aug. 1950. 6 pp. 15 cents.

——Transportation Activities of Chambers of Commerce. Transportation and Communication Dept., Chamber of Commerce of the U. S., Washington 6, D. C. Aug. 1950. 25 pp. 50 cents.

——United States Civil Defense. Executive Office of the President. National Security Resources Board, U. S. Government Printing Office, Washington, D. C. 1950. 162 pp. 25 cents.

——United States Government Organization Manual 1950-51. 657 pp. The Superintendent of Documents, Government Printing Office, Washington 25, D. C. $1.

VIRGINIA—Annual Salaries of Municipal Officials in Various Virginia Towns. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. July 1950. Report No. 323. Mimeo. Charts. 10 pp. 50 cents.

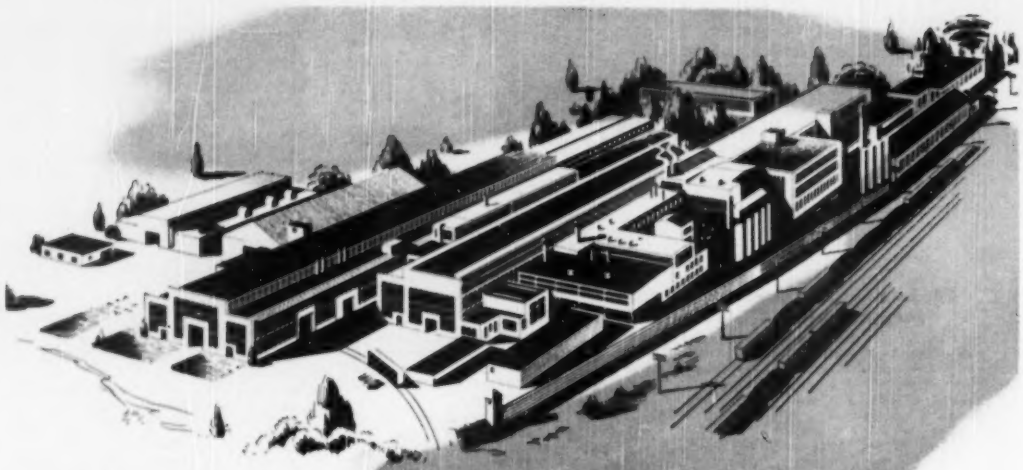
——Salaries and Working Conditions of Firemen in Various Virginia Towns. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Aug. 1950. Mimeo. Tables. 8 pp. 50 cents.

——Sewer Charges, Levies and Special Assessments in Virginia Cities and Towns. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Report No. 326. Aug. 1950. 75 cents.

WILMETTE, ILL.—Wilmette Hand Book. Tables. Charts. 17 pp.

WINNETKA, ILL.—Annual Report for Fiscal Year ending March 31, 1950. Finance Dept., Mimeo. Tables. 27 pp.

WISCONSIN—Absentee Voting in Wisconsin. Issued by the League of Wisconsin Municipalities, 30 East Johnson St., Madison 3, Wis. Sept. 1950. Mimeo. 9 pp.



Joining Two Great Names in Engines . . .

MEANS BETTER ENGINES FOR YOU

Whether your engine requirements are best filled by a Superior or an Atlas Engine, you can be sure of the best and most practical in engineering and manufacture . . . both of these famous lines of engines are now being built by the Engine Division of The National Supply Company.

The big, modern, 15-acre Superior engine plant at Springfield, Ohio, is busy building Superior and Atlas engines. The big research and development laboratory is staffed with experts from both Superior and Atlas. And the same top-quality standards that have made each of these names outstanding in their fields will be maintained in the newly-combined operation.

Parts stocks for both brands will be developed and maintained, at additional service facilities which are being expanded to cover the continent from Alaska to Mexico, from Nova Scotia to Texas.

You can buy either an Atlas or a Superior engine with full assurance of service and spare parts . . . plus improved engineering and manufacturing techniques.

For the address of your nearest Superior-Atlas sales-service office write to . . .

THE NATIONAL SUPPLY COMPANY
ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

DIESEL ENGINES . . . . NATURAL GAS ENGINES . . . . DUAL FUEL ENGINES

Purchasing in Cincinnati In '49 Touches Normalcy

FROM a purchasing standpoint, the year 1949 can be considered more nearly normal than any year since the beginning of World War II. Most items were relatively plentiful at prices somewhat below the peaks established following the termination of hostilities and governmental controls. Improved conditions are shown by the increased interest in the city's business. Almost every mail delivery brings requests from suppliers throughout the country to be placed on our mailing lists.

An outstanding example of changing supply conditions was reflected by our purchases of gasoline for the last nine months of 1948 and for the year 1949. In 1948, because of local supply conditions, no supplier would enter into a formal contract for even a part of our requirements. Because of changes in these conditions, in 1949, we were again able to obtain our requirements of gasoline on a contract basis at prices averaging 2½ cents per gallon less than during the period of short supply.

In the light of changes which occurred in certain industries, we reviewed existing contracts with the aim of securing a reduction in price whenever conditions seemed to warrant and, in the case of contracts with renewal options, to determine whether to renew or to solicit new bids. As an example, our contract for automobile lubricating oil was terminated June 30, 1949, and new bids solicited. These bids resulted in a saving of 20 cents per gallon on the same oil as previously furnished, or a total estimated saving of $5,460 on the year's requirements.

During 1949, contracts were negotiated for the purchase of 117 passenger cars; 15 commercial truck units; 16 light-duty trucks (under 2½ tons); 23 heavy-duty trucks (2½-ton and over); 4 solo and 2 servi-car motorcycles; 1 hospital ambulance; and fire apparatus consisting of three 1,000-gallon pumpers and one 100-foot aerial ladder, at a total cost of approximately $412,000.

Below—some total dollar purchases:

Food products	$ 328,750
Contractual services (construction, repairs, etc.)	2,037,881
Paving, road and building materials	346,144
Lubricants, oils, greases and gasoline	342,273
Automotive equipment parts and accessories	768,458
Paints, varnishes, lacquers, glass, etc.	61,644
Iron and steel—castings and forgings	1,646,739
Hose, belting, packing and fiber; leather	36,907
Construction, engineering, plant and factory equipment	151,520
Electrical supplies, fittings and parts	187,447
Traffic and signal system supplies and equipment	10,463
Drugs and chemicals	606,187
Recreation and playground supplies and equipment	39,353

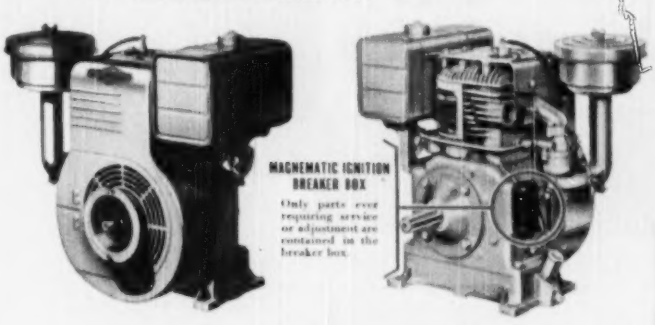
JOHN C. KRIEG
City Purchasing Agent, Cincinnati, Ohio

ONLY BRIGGS & STRATTON HAS THE MODERN

Magnematic Ignition

(Patents Pending)

STANDARD EQUIPMENT ON MODELS 9-14-23



A Dependable Spark For Better Engine Performance at ALL SPEEDS

Magnematic Ignition delivers a dependable spark at lower speeds and better engine performance at all speeds.

LONG SPARK PLUG LIFE — magneto output tailored to engine requirements — sparks only on firing stroke — voltage decreases as speed increases, substantially lengthening spark plug life.

AUTOMATIC SPARK ADVANCE — spark is retarded at starting speed and automatically advanced as engine speed increases.

QUICK, EASY STARTING — pull-up cranking with no danger of a "kick" during rope or hand cranking.

SEALED, WATERPROOF COIL — one piece, plastic insulated coil, fully sealed and waterproofed with molded-in high tension lead.

SIMPLE AND DEPENDABLE — no extra gears, bearings or lubrication system.

EASY TO SERVICE — only parts ever requiring service or adjustment accessible by removing breaker-box cover conveniently mounted outside crankcase.

Magnematic Ignition is another exclusive Briggs & Stratton development which is setting new standards of performance for single-cylinder, air-cooled engines.

Write for bulletin giving complete information on Magnematic Ignition and Briggs & Stratton engines.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U. S. A.

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Powered Power FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

World Wide FACTORY SUPERVISED SERVICE

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment.

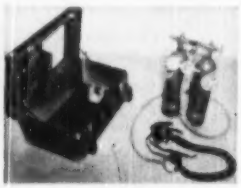
Protect Your Citizens with Better-Equipped Rescue Squads

Scott Demand Inhalator

THE new Scott *Demand* Inhalator provides efficient portable oxygen equipment for emergency use, *at low cost.* Offering "demand" flow of oxygen, plus constant flow if needed, the Scott *Demand* Inhalator can be used independently or as supplemental equipment in resuscitation, freeing resuscitators for use elsewhere.

The Scott *Demand* Inhalator is simply designed, easy to use. No adjustments of any kind are needed; department personnel does not require special training to use this new Scott product.

TYPE "A" Scott Demand Inhalator — portable, or for fixed installation in truck or ambulance (without cylinder) **$88.50**



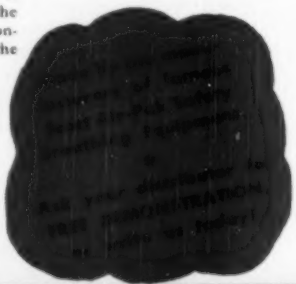
TYPE "B" Scott *Demand* Inhalator including carrying case (without cylinder) **$147.50**

Features of the Scott Demand Inhalator

SIMPLE. The Scott *Demand* Inhalator is easy to use — requires no special training. No adjustments are necessary — just a quarter turn of the cylinder valve and the Inhalator is ready to restore shock, immersion and heart-ailment victims.

EFFICIENT. With the Scott Inhalator oxygen is provided in ample quantity as "demanded" by the victim, conserving precious oxygen supplies. Constant flow also available when needed, "at the touch of a button."

LOW COST. In any one of several models the Scott *Demand* Inhalator is available at a cost well below that of other equipment of comparable scope. Investigate this new low-cost oxygen unit *now!*



ESTABLISHED IN 1932

Scott

FOR SAFETY—FOR SERVICE

MEDICAL DIVISION

SCOTT AVIATION CORPORATION

191 ERIE STREET, LANCASTER, N. Y.

CANADA: SAFETY SUPPLY CO. BRANCHES IN ALL PRINCIPAL CITIES
EXPORT: SOUTHERN OXYGEN CO., 137 Chambers St., New York 7, N.Y.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Voit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.

City Engineer Wanted

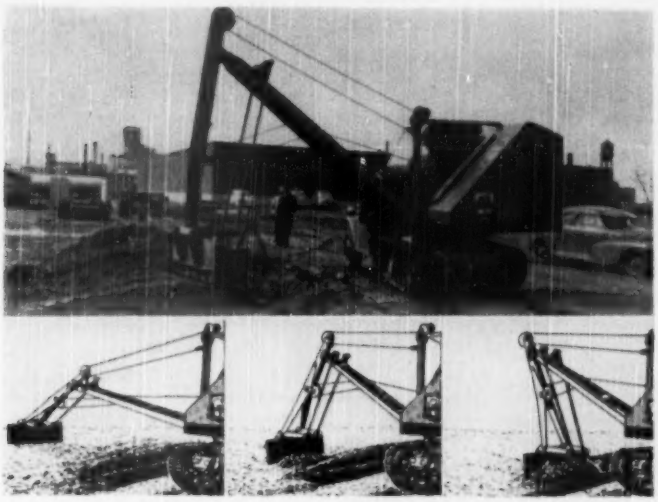
City of Sheboygan, population 42,000, seeks a city engineer. Must be a graduate civil engineer. Address all letters to Mayor Sonnenburg giving all details of past experience and training. Salary $7,000.00.

Mayor Willard M. Sonnenburg
City of Sheboygan
Sheboygan, Wisc.

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Multi-Purpose Shovel



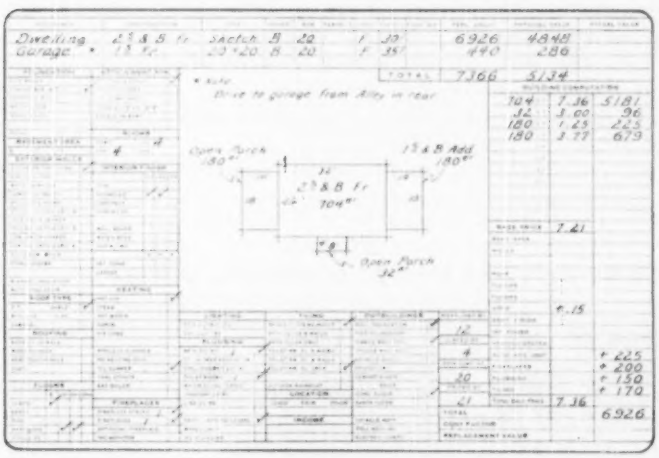
New backfill blade attachment developed by Schield Bantam Co., 234 Park St., Waverly, Iowa, employs simple blade-to-arm linkage which keeps blade vertical to ground at all times. Used interchangeably with the truck-mounted Bantam trench hoe, the new backfiller speeds covering and leveling of all types of trenching work, including water and sewer lines, electrical conduits, oil and gas mains, drainage ditches, manholes, garbage disposal fills, and seepage beds.

Revaluation for Tax Equalization

Owners of real property defray the bulk of local governmental expense. Their constitutional right is to have property taxed as fairly and equitably as humanly possible. Many cities have already achieved disinterested tax equalization. A number of them used the services of The J. M. Cleminshaw Co., whose primary function is to revalue the properties, real and personal, of entire municipalities for local tax equalization purposes.

The method of appraisal of buildings is to gather all factors of land valuation available, such as recent fair sales, asking prices, rentals. These data are analyzed, collated and translated into unit front-foot values. A unit front-foot is a strip of ground one foot wide fronting on a street, 100 feet or 150 feet deep. Unit values are placed upon an outline or block map. It then becomes necessary to adjust these values and equalize them by blocks throughout the entire municipality, starting at the highest valued corners and graduating to the lower valued locations. No appraisal of an individual parcel of ground can possibly have the accuracy of land valuations as determined by these methods.

The method is explained in a 44-page brochure. Diagrams, maps, records and photographs illustrate actual calculations and evaluations. Included is a list of 103 municipalities in 14 states which have had this work done. Of particular practical value to officials considering such a project are excerpts from 50 of the municipalities, each signed by the responsible official. Copy of the brochure may be obtained from The J. M. Cleminshaw Co., Union Trust Bldg., Cleveland, Ohio, or 330 West 42nd St., New York, N. Y.



PREMAX

HOUSE NUMBERS

That Are Easy to See At All Times

Stamped and embossed aluminum and brass house numbers, in either 3-inch or 4-inch size, have been supplied by Premax to hundreds of municipalities who felt the need for an adequate, legible system of house numbering.

Send for special pamphlet and complete details.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
5146 Highland Ave., Niagara Falls, N. Y.

Rx A-W POWER GRADER

BEST For What Ails Your Roads

Blading in reverse is easy, thanks to All-Wheel Steer.

All-Wheel Drive provides ample power for heavy ditch cuts.

Riding the bank to reach extra high with the 13-foot blade.

The Loader Attachment solves the ditch and shoulder cleaning problem.

The Roller Attachment has many construction and reconstruction uses.

"Controlled Traction," an exclusive feature, moves more material, farther and faster.

BEST, because All-Wheel Drive makes every pound of weight a powered pound, harnessed to a driving wheel. For maximum traction—primary element in Power Grader efficiency—*there is no substitute for All-Wheel Drive.*

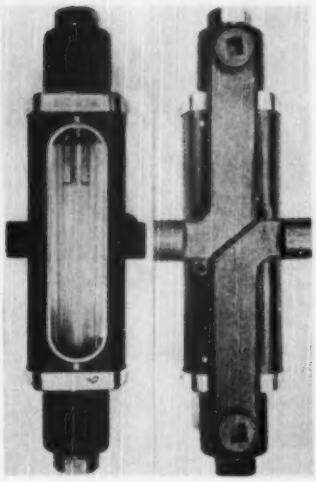
BEST, because All-Wheel Steer directs and controls this tremendous traction to maximum advantage, provides superb earth-moving ability, and mastery of all types of work.

BEST, because of the additional values offered by specialized attachments—many exclusively Austin-Western—which greatly increase the usefulness and profit-making ability of the grader.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.

BUILDERS OF ROAD MACHINERY SINCE 1859

Austin Western



New horizontal line meter

This Meter Adapter For Horizontal Lines

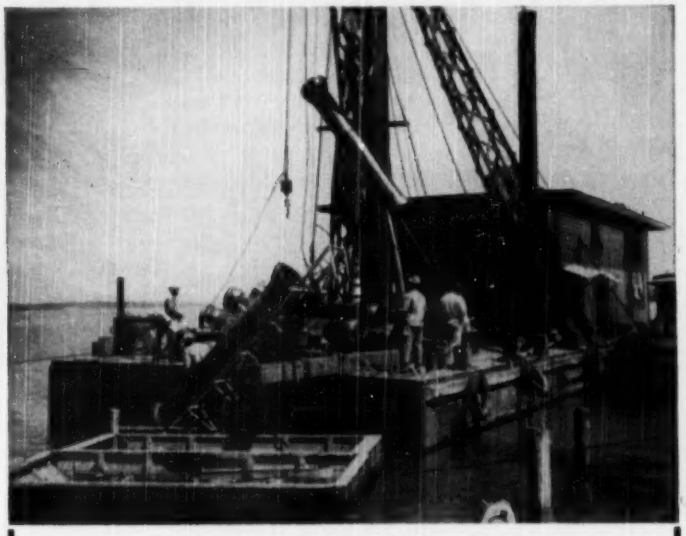
An adapter is now available for installing Flowrator meters in horizontal process piping to meter either gas or liquids. This eliminates the necessity for a vertical rise in a line where head room is at a premium. The horizontal line adapter is constructed of a number of corrosion-resistant materials, and may be supplied for use with all standard meters. Eye-level flow indication for accurate instrument reading is now made possible by this adapter, where necessity of vertical runs made it impossible before.

Copies of catalog section 25 describing use of this accessory may be obtained by writing to Fischer & Porter Co., 25 County Line Road, Hatboro, Pa.

Foxboro Announces Branch Office

Announcement by The Foxboro Co. of two new branch office addresses brings the total of its domestic offices to 39, of which three include branch factory facilities. The Foxboro Co., whose head office is at Foxboro, Mass., is a manufacturer of industrial instruments for measurement and control.

The newest addition to the list is the branch office at 214 W. 10th St., Wilmington 1, Del., under the management of Kenneth L. Barton. Earlier this year a Foxboro Company office was opened at 225 S. 5th St., Minneapolis 2, Minn.



16" Water Pipe Line under John's Pass, Fla., being installed in 35 feet of water

BOYCE COMPANY

SUBMERGED PIPE LINES ALL OVER THE WORLD

Phone 3-2530 **CLEARWATER, FLA.**

ALABAMA PIPE COMPANY

General Sales Offices

ANNISTON, ALABAMA

TAKES **pride in announcing the resumption of pressure pipe manufacture at its recently completed modern plant located at Anniston, Alabama. This plant produces Super deLavaud cast iron pipe, centrifugally, in modern long lengths.**

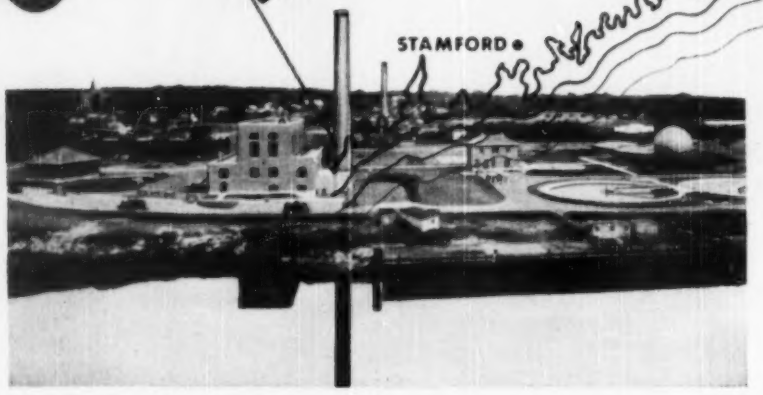
Inquiries addressed to our nearest sales office will be appreciated.

122 So. Michigan Avenue
Chicago 3, Ill.

3122 Coleman Road
Kansas City 2, Mo.

350 Fifth Avenue
New York 1, N. Y.

Stamford invests in



Sewage treatment and incineration are combined into one operating unit at Stamford, Conn. The plant uses the elutriation process to condition sludge. The effluent is post-chlorinated and sludge is flash dried for sale as a soil conditioner.

General Electric motors and control used throughout the plant keep running expenses low.

At this outdoor G-E unit substation, high voltage is dropped to utilization voltage for distribution to G-E motors and control throughout the plant. G-E standardized unit substations are completely factory-assembled, ready-to-install units.

One of the nerve centers of the Stamford plant, this G-E Cabinetrol control installation centralizes low-voltage control of motors, lighting, and other auxiliary equipment. Such installations conserve space and save steps; make for more efficient operation.

These G-E vertical motors drive centrifugal pumps which pick up sewage after it passes through bar screens. The control above the first motor automatically selects the pump or pumps needed to handle the flow. Five motors—one 20-hp, one 40-hp, and three 75-hp—are used.

GENERAL ELECTRIC

666-57

CLEAN WATERS

Modern G-E Equipped Combination Wastes Plant Economically Serves City of 70,000

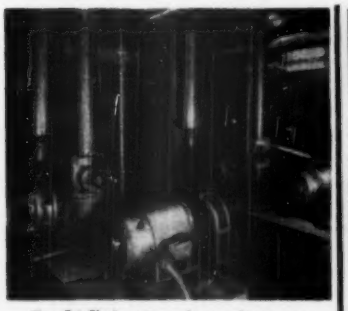
Before 1944, most of Stamford Connecticut's sewage had to run through its treatment plant quickly or bypass it entirely. This created an unhealthful condition in Stamford Harbor and Long Island Sound. Today, *Stamford's wasters are clean.*

Finding itself in the same situation as many other cities where the war brought increases in industrial activity and population, Stamford solved its sanitation problem by rebuilding its sewage treatment and incineration plants to combine them into one operating unit.

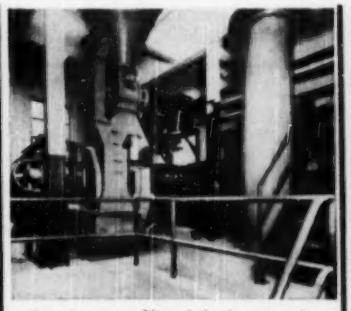
This investment in *clean waters* is returning large dividends in the form of better health, cleaner beaches, and higher community standing. What's more: the plant operator says the power cost of the new plant is less than the old one, thanks to modern processes and equipment recommended by the consulting engineer and General Electric.

General Electric can help your community get that new or improved sewage treatment plant by giving engineering assistance to help you and your consultant —*first* in helping formulate electrical plans and *second* in building public support with the full-color sound movie *Clean Waters*.

Contact your General Electric office early in the planning stage. The nearest G-E office is listed in your local classified 'phone directory. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*



The Tri-Clad motors shown above are V-belted to vacuum pumps used in the sludge dewatering process. Sludge is pumped from the elutriation tanks into vacuum filters for de-watering. Motors are 15 hp, 1800 rpm, and operate on 208-volts, 3-phase, 60-cycle a-c.



From the vacuum filter, sludge is conveyed from the sludge drying and weighing equipment. Drying and weighing equipment is at left, a dry divider at right rear. View shows one of several G-E motors used throughout the process.

Dry sludge is driven by means of screw feeders into garbage and refuse incinerators when required; normally, however, it is bagged and sold. Tri-Clad® special-purpose, open, gear-motors, mounted on the frame at upper right, chain-drive the conveyors.

GE SEWAGE-PLANT ELECTRIFICATION

THERE WAS AN OLD CITY...

THE problem of the old woman who lived in a shoe has been dumped in the laps of American city planners. What to do about the continuing expansion of industry . . . the rapid growth of urban populations?

Modern, up-to-the-minute map information is the first step toward the answer. In most cities, existing maps have long ago outgrown their usefulness and the cost of collecting new map data is high in terms of time and money.

Aerial photography, however, can solve your mapping problems swiftly and economically. *At less than half the cost* and in a fraction of the time required of ground surveys, AERO's exclusive glass plate process is providing the city of Cleveland with aerial topographic maps that meet the most rigid demands of engineering accuracy.

Precision aerial maps by AERO can help you plan your city's future with the finest map facts available to science . . . at the lowest possible cost to the taxpayer.

Let AERO's engineers bring thirty years of photogrammetric experience to your city planning staff. It will help you build a better place to live in. Write Aero Service Corporation, today.

AERO MAPS THE FUTURE

AERO
SERVICE CORPORATION
236 E. COURTLAND ST., PHILA. 20, PA.
Oldest Flying Corporation in the World

TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS • AIRBORNE MAGNETOMETER SURVEYS • RELIEF MODELS • COLOR PHOTOGRAPHY

For More Effective Control of Slime, Algae Water Growths

Fewer additions of treatment are needed during algae growth periods, when Nalco Cuprose is used in place of copper sulphate for control of algae and slime growth in cooling systems, ponds, lakes, swimming pools, and municipal reservoirs. Cuprose stability in solution and high solubility in alkaline waters make it from two to five times more effective than equal doses of copper sulphate. Consequently, the treated water contains less copper, which is an undesirable metal in some industries.

Water used for drinking usually can stand as high as 4 or 5 ppm of Cuprose without being noticeable. For certain severe conditions, Cuprose may be used in amounts as high as 10 ppm, since algae will absorb most of the treatment.

A folder containing full details and actual photographs of Cuprose algae and slime control may be obtained by writing to the National Aluminate Corp., 6216 West 66th Place, Chicago 38, Ill.

New Morris Pipe Couplings

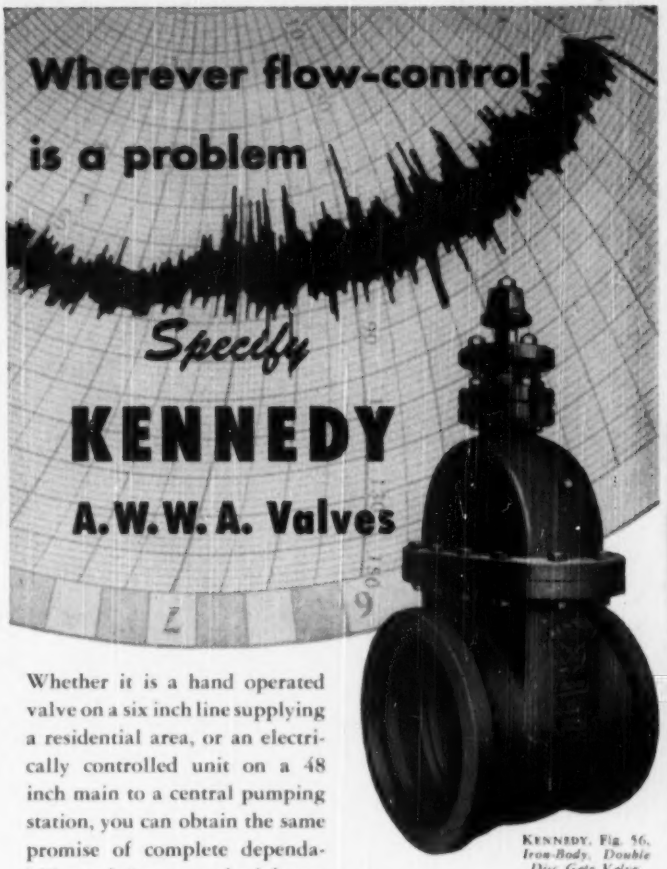
Morris pipe couplings manufactured by the Morris Coupling and Clamp Co., C. F. Maroney, President, 1352 Beaver Ave., Ellwood City, Pa., are now available for pipe sizes up to 8 inches. In addition to the standard zinc-coated steel line, all aluminum couplings are also available in all sizes to 8 inches.

Morris pipe couplings are used for permanently joining either plain end or threaded pipe or a combination of the two. The pipe coupling is the only compression band type coupling on the market, and serves to hold the entire surface of the joint in compression, the manufacturer states.

The couplings are now being used successfully on oil, gas water, steam, air, sewage, irrigation, and conduit lines. Rubber gaskets are furnished as standard equipment, but gaskets of various types such as cork, fibre glass, and neoprene, are also available. Descriptive literature will be mailed on request.

New Allis-Chalmers Public Relations Appointment

Gerald C. Quinn, editor since 1945 of the Allis-Chalmers *Electrical Review*, has been appointed supervisor of industrial press relations, according to A. R. Tofts, manager of the A-C advertising and industrial press department. Mr. Quinn succeeds N. H. Jacobson, who has joined the Atomic Energy Commission in the newly created position of technological information officer.



KENNEDY, Fig. 56, *Iron-Body, Double Disc Gate Valve.*

Whether it is a hand operated valve on a six inch line supplying a residential area, or an electrically controlled unit on a 48 inch main to a central pumping station, you can obtain the same promise of complete dependability and always-on-the-job performance from every KENNEDY A.W.W.A. valve you install.

Page 15 of the KENNEDY Catalog shows an illustration from the *Scientific American* of October 15, 1892, of a 48 inch KENNEDY Valve that was installed in New York City in that year. Forerunners of the present waterworks valves, many such half-century old KENNEDY valves are still in service . . . ample testimony to the rugged strength and extra service that have always been built into KENNEDY valves.

Conforming to the specifications of the American Water Works Association, KENNEDY A.W.W.A. Valves are especially designed with water works control problems in mind. They are available in all sizes from 3 inches to 60 inches . . . non-rising and outside-screw-and-yoke types . . . with a wide variety of gearing arrangements, controls and accessory equipment available.

Write for complete information

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

5th NORDBERG DIESEL

for Rensselaer Indiana...

OUTLINED here are highlights of the development of the municipal power plant at Rensselaer, Indiana . . . a plant started in 1898 with a 60 H.P. steam engine belted to a 1,000 volt generator, and progressing through 53 years until a total of five Nordberg Diesels were installed to handle the ever increasing load.

The fifth Nordberg now carries a large part of the plant load, operating from 14 to 16 hours each day until the load drops to where smaller units can handle it more economically. Comparing present day output of this new Diesel with that of the plant when Diesels were first installed, we find that in two months the new 2800 H.P. unit generates an amount about equal with the entire annual output in 1925. In one month, this unit generated 475,500 K.W. hours at the rate of 13 K.W. per gallon of fuel, carrying an average load of 54%. Lighting rates at Rensselaer have been among the lowest in Indiana . . . thanks to dependable, low cost Nordberg power.

Here again is a typical example of the way in which Nordberg Diesels provide the economical answer to municipal and industrial power problems. Write for details on a Nordberg engine to meet your requirements—in sizes from 10 to 9600 H.P.

NORDBERG MFG. CO., Milwaukee 7, Wis.

1924 FIRST Nordberg Diesel installed . . . a 5-cylinder, 550 H.P. unit. Original steam engine kept available for stand-by service.

1928 SECOND Nordberg installed . . . an 875 H.P. unit driving a 600 K.W. generator. Steam plant abandoned.

1932 THIRD Nordberg installed . . . developing 1425 H.P. and 1000 K.W. New building erected and old plant razed.

1940 FOURTH Nordberg installed . . . a 6-cylinder, 1500 H.P. unit, bringing the plant capacity up to 4350 H.P.

1950 FIFTH Nordberg Diesel installed . . . a 7-cylinder, 21½" x 29", 2800 H.P. unit, driving a 2400/4160 volt, 1980 K.W. generator. Total plant capacity now 7150 H.P.

P1050

BUSCH-SULZER A DIVISION OF NORDBERG

NORDBERG

DIESEL ENGINES

Street-Name Signs That Last and Last

Richmond, Va., has hundreds of street-name signs that were one of the first consignments made by Municipal Street Sign Co., Inc., 777 Meeker Ave., Brooklyn 22, N. Y., over a quarter-century ago. Today these porcelain-enamel signs, white letters on black field, are clearly legible and show little wear.

The manufacturer still gives any city or town a 10-year guarantee with its signs, and also makes a trial offer to equip six intersections for 90 days, no obligation. The enduring quality of these signs is further established by recent commercial-laboratory tests comparing porcelain and baked-enamel finishes. Illustrated printed matter is available from the manufacturer without charge.

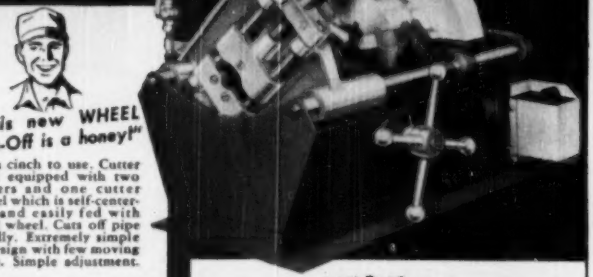
G-E's Position Today

In the event of all-out mobilization, the General Electric Co. is in a position to produce substantially double what it produced during World War II, Charles E. Wilson, G-E president, declared recently. Approximately 20% of General Electric's current business is defense work. The company had a substantial backlog of defense contracts long before the Korean War and some of these have now been increased, he pointed out.

Since 1941 the number of G-E plants has nearly doubled, from 61 to 115 at present, the latter figure not including several plants operated for the Government. Total employment of 180,000 is about twice the pre-war levels, and the corps of scientific, engineering, and technical specialists is double what it was in 1941. Another factor of strength is that General Electric is today doing business with 31,000 vendors and 35 subcontractors, nearly twice as many as in 1941.

To bring the full facilities of the company to bear on requests from the Department of Defense, a "Defense Projects Committee," composed of senior officers of the company, was established as early as March, 1948. Vice President Chester H. Lang, chairman of the Defense Projects Committee, assumed responsibility for implementing the program within the company and for contact with the Munitions Board. All in all, General Electric has in being a group of more than 100 key officials who have responsibility for the company's mobilization planning, he said.

NOW—YOUR CHOICE!
Wheel or Knife CUT-OFF
with TOLEDO 2" Portable Power Pipe Machine



"This new WHEEL Cut-Off is a honey!"

It's a cinch to use. Cutter head equipped with two rollers and one cutter wheel which is self-centering and easily fed with hand wheel. Cuts off pipe rapidly. Extremely simple in design with few moving parts. Simple adjustment.

"I like the KNIFE! Been using it for years!"

With the Toledo Knife Cut-Off, four cutter knives leave a straight square-end cut without burr. Blades are fed thru a scroll by a small hand wheel. May be resharpened many times.

SPEED PRODUCTION . . . CUT COSTS!

Today more than ever you need the speed and practical features of this great TOLEDO No. 999 2" Power Pipe Machine! Gives you high production—reduces costs—saves up to 80% on pipe threading time compared with hand methods!

It's "tops" with better mechanics for cutting, threading and reaming all pipe sizes up to and including 2" and bolts from ⅜" to 1½". Popular and efficient for shop or job use or for industrial plants.

★ THREAD 2" PIPE IN 22 SECONDS!

★ CUT OFF 2" PIPE IN 10 SECONDS!

★ COMPACT... PORTABLE ...LOW COST!

★ SAVES LABOR!

Now—the Super Model available with choice of Wheel or Knife Cut-Off. See it—try it—with the new Wheel and Roller Cut-Off! Outstanding for simple design . . . quick adjustment . . . rapid cut-off. Toledo-built dependability. Ask your distributor for details. Write for bulletin. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

RELY ON THE LEADER TOLEDO
POWER DRIVES...PIPE TOOLS...POWER PIPE MACHINES

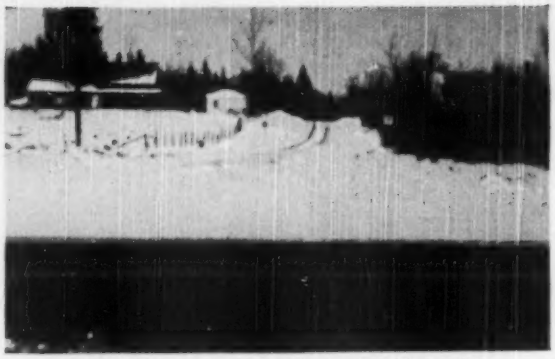
FEWER ACCIDENTS!
EASIER HANDLING!
LESS WORK!

with

CAYUGA ROCK SALT

at

50% LESS COST



Contrasting road treatments in New Hampshire
Above—(in background) sanded, snow-covered, slippery, dangerous.
Below—(in foreground) treated with rock salt; road bare, dry.

HERE IS A FASTER and CHEAPER METHOD OF ICE AND SNOW CONTROL:

Apply CAYUGA ROCK SALT in a thin, wide "bird shot" melting pattern. Get the salt on the road early in the storm before snow becomes compacted and frozen. Each salt pellet goes to work immediately, full width of the road, keeping the snow in a soft, mealy, workable condition.

The Tarco "Scotchman" Salt Spreader is ideally suited for the correct application of Cayuga Rock Salt. Depending on storm conditions, if you will apply from 300 lbs. to 400 lbs. of Cayuga Rock Salt per mile of road—full width—you will be amazed at how fast you obtain BARE, SAFE pavements. This light, thrifty "Scotchman" salt application assures maximum melting with the absolute minimum of salt. No highway department that has once used 100% Cayuga Rock Salt for winter road maintenance has ever gone back to sand or cinders.

Write for Booklet.

TARCO "Scotchman" Salt Spreader

Cayuga Rock Salt

COMMERCIAL GRADE OF SALT

SIZES FOR ALL PURPOSES
BULK OR BAGS

Ice and Snow Control
Chemical Processes
Production of Pure Brine
Many Other Uses

NATURE'S PURE PRODUCT—Mined 2000 Feet Below Historic Cayuga Lake

CAYUGA ROCK SALT CO., INC., MYERS, N. Y.

SIZES FOR ALL PURPOSES — *Call Nearest Distributor* — **BULK OR BAGS**

W. H. SHURTLEFF CO.
2½ Union Wharf,
Portland 3, Maine
Telephone 2-7461
also
Dutton Street, Bangor, Maine
Telephone 7903

BARNES SALT COMPANY
Corner Benefit and India Streets
Providence, Rhode Island
Telephone Dexter 1-7279

SOUTHERN SALT COMPANY
232 West Main Street,
Norfolk, Va.
Telephone 2-6658

THE CHEMICAL CORPORATION
54 Waltham Ave., Springfield 3, Mass.
Telephone 9-5091
Warehouses:
Pittsfield, Mass.—Telephone 2-0716
Boston, Mass.—80 Berkeley St. Telephone Liberty 2-7171
Hartford, Conn.—Telephone 6-3253
Concord, N. H.—Telephone 2394
New Haven, Conn.—Telephone 8-3837

CHAS. SCHAEFER & SON, INC.
204 Moserole Street, Brooklyn 6, N. Y.
Telephone Hyacinth 7-2400

CHAS. SCHAEFER & SON of N. J., Inc.
Tremley, N. J.
P. O. Box 236, Elizabeth, N. J.
Telephone Elizabeth 2-7910

KERR SALT COMPANY
919 North Delaware Ave.,
Philadelphia 23, Pa.
Telephone Market 7-6094

KERR SALT COMPANY
901 South Wolfe Street,
Baltimore 31, Md.
Telephone Wolfe 9283

H. J. FERGAN, INC.
Anderson & Isabella Streets
N. S. Pittsburgh 12, Pa.
Telephone Cedar 1-6766

YOUNGSTOWN BUILDING MATERIAL & FUEL CO.
1563 Logan Avenue
Youngstown 6, Ohio
Telephone 3-6101

OBRECHT SALT COMPANY
1205 Key Hway., Baltimore, Md.
Telephone Saratoga 2570

INDUSTRIAL SALT SERVICE
A Division of Highway Materials Co., Inc., Groton, N. Y.
Telephone Groton 154

Branch Warehouses:
Congers, Rockland Co., N. Y.
Niagara Falls, N. Y. (Lehigh Valley R.R. Co. Roundhouse)

A. P. NILSON, Sales Engineer
12 Mercer Ave., Chatham, N. J.
Telephone Chatham 6-7005

New Lamp for Outdoor Sports

A new 1800-w sports floodlight lamp is available from the Westinghouse Lamp Div., Bloomfield, N. J. A collector grid above the filament collects the vaporized tungsten that normally deposits on the inner surface of the bulb, with a resultant gradually increasing absorption of light as the lamp burns. At the end of its life, the lamp in conventional sports-lighting equipment will still produce approximately 81% of the initial beam lumens as compared with some 59% for the lamp without the collector grid.

Annual NCPMI Convention

Prominent leaders in the clay pipe industry, representing every part of the U. S. and Canada, attended the annual Fall convention of the National Clay Pipe Manufacturers, Inc., held recently in Pittsburg, Kansas. W. E. Robinson, president of The Robinson Clay Products Co., Akron, Ohio, and president of the National Association, presided. The W. S. Dickey Manufacturing Co. of Pittsburg, and its president, Hans P. Wilhelmsen, acted as hosts to the 110 representatives attending the four-day session.

Reports from NCPMI member manufacturers showed an increase of 20% in production for the first eight months of 1950 as compared with the same period of 1949.

Frink Roto-Broom In Production

Frink Sno-Plows, Inc., Clayton N. Y., has announced that the Model F75 Frink Roto-Broom is again in production. The truck-mounted street sweeper, used for sweeping streets, road building work, and snow removal, has a number of improvements over the pre-war models, including 5.7 hp gasoline engine and caster wheels with moulded-on solid rubber tires. Literature and prices will be forwarded on request.

CUTS ICE and SNOW REMOVAL COSTS

You can provide MORE PROTECTION at LESS COST if you use a stainless steel "Scotchman" spreader and straight de-icing salts (no sand; no cinders).

The thrifty "Scotchman" method is far CHEAPER than sand or cinders. It is eight times FASTER. It keeps drainage open and provides BARE, SAFE pavements.

You SAVE when you SALT with a "Scotchman"

COMPLETE CONTROL: *direction, width, and rate of spread.*

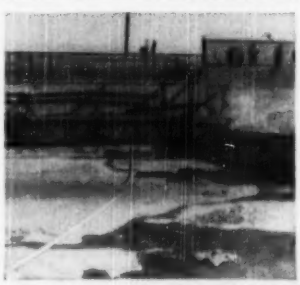
WEATHER-PROOFED ENGINE • ELECTRIC STARTER

BAGGED or BULK SALT • USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG. CO. EAST AVE., SARATOGA SPRINGS, N. Y.

"GUNITE" USED BY CEMENT GUN CO. TO REPAIR AND ENLARGE RESERVOIR

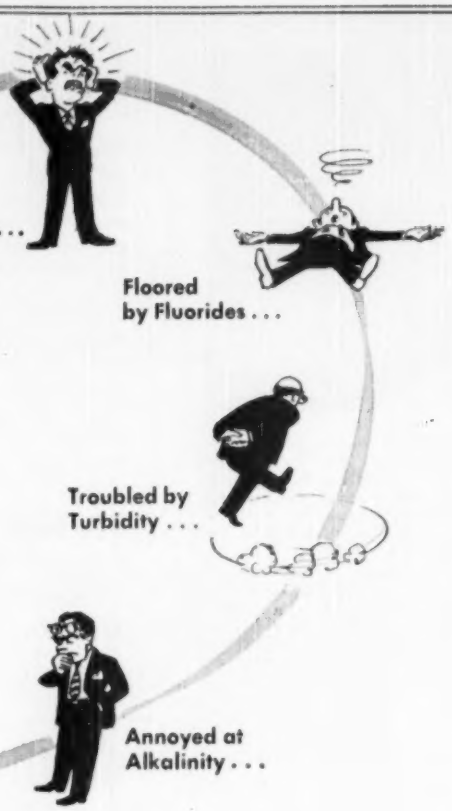


In 1947 we "GUNITED" the West End Reservoir at Hagerstown, Maryland. The pictures clearly show important stages in our work to give it greater capacity and to stop excessive leakage. After existing cracks in the concrete floor were sealed, "GUNITE" was applied to waterproof and reinforce the stone masonry and to add 30 inches to the height of the walls.

Many instances of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin D2400. A request on your letterhead will bring your free copy by return mail.

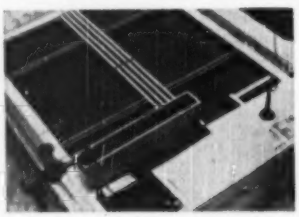
CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN

Men with WATER ON THE BRAIN . . .



Is there something wrong with your town's water supply? Hardness? Turbidity? Silica? Alkalinity? Fluorides? Color? Taste? Odor? If you are plagued by any one of them, it's a good idea to specify Permutit water conditioning equipment.

— *should know about the* PERMUTIT PRECIPITATOR!



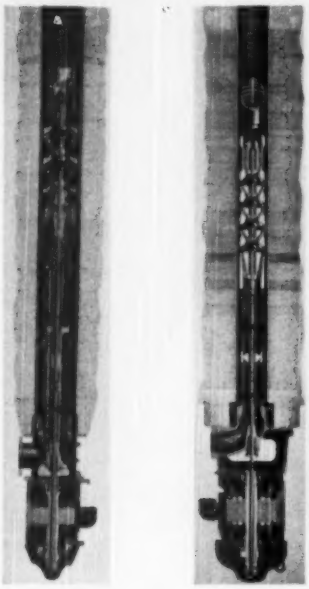
The Permutit Precipitator brings you a new and more efficient means for removing impurities from water. It does this by precipitation, adsorption, settling and upward filtration. Its sludge blanket is kept fresh and active at all times. The Precipitator requires less space, less time and less chemicals than previous designs of reaction and settling tanks.

Write today for full information about this economical equipment to The Permutit Company, Dept. AC-11, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

Water Conditioning Headquarters for Over 37 Years

PERMUTIT

News About A. O. Smith Vertical Turbine Pumps



In addition to the standard application of the SMITHway vertical turbine pumps for deep wells, this pump is winning increasing recognition as a raw-water intake pump, especially where a wide variation in water levels exists. By comparison, a centrifugal pump operates on a normal maximum suction lift of 10 feet.

If in the dry season the pump is installed 10 feet above low water, it will have to be moved when the water rises; and if installed at a season of high water, the pump may have to be moved when the suction lift exceeds about 10 feet.

These expensive moves can be avoided by putting an intake structure in the river and placing a turbine pump on the pier the floor of which is above high water. The bottom bowl of the pump is extended below minimum low water. The distance from the bottom impeller to floor level can vary to suit any condition. An attendant advantage is that the vertical pump will require no priming. With present-day cost of building, space saving becomes an important factor. A 100-hp unit needs only 30 by 30 inches of floor space.

Typical illustrations of the SMITHway vertical turbine pump in regular deep-well operation are found at water works from Bartow, Fla., to Long Beach, Calif. This pump is described in Bulletin PI-178A.

Another interesting A. O. Smith vertical turbine pump is the smaller high-efficiency Watermaster, which operates inside wells of 4-inch minimum diameter. Capacities range from 15 to 115 gpm. Design features include an adjustment nut on top of the motor which varies rated capacity or pressure as much as 25%.

Bad for Crabgrass

During the last quarter-century Scott's Lawn Research has grasped every suggestion as to what to do about crabgrass. Tests were carried on in South America and Guatemala to gain extra growing seasons, but to no avail. In the winter of 1946, hope appeared in a preliminary report on observations made at Rhode Island State College. Those in charge of work on turf noted that certain plots being treated for disease control were clear of crabgrass. It happened that the fungicidal treatment carried a complex organic mercury as its active ingredient. Here was an indication that mercury in the right form might prove a differential chemical for crabgrass control. Beginning with the 1948 crabgrass season, many dry formulations were applied to infested areas. Before that time several acres of Scott's testing grounds had been seeded to various species of crabgrass to insure adequate experimental areas. From this work has emerged a dry compound called Scutl. It subdues crabgrass with little or no harm to desirable grasses. It is made by O. M. Scott and Sons Co., Marysville, Ohio.

Sound Investment *for the Pension fund*

THE PREFERENCE of today's pension fund administrator for high grade bonds as fund investments is based on the need for conservatism, dependable yield and a definite return of principal at a fixed maturity date. It is an accepted principle that bonds must be the backbone of such funds to preserve the soundness of the pension, insurance or endowment obligation.

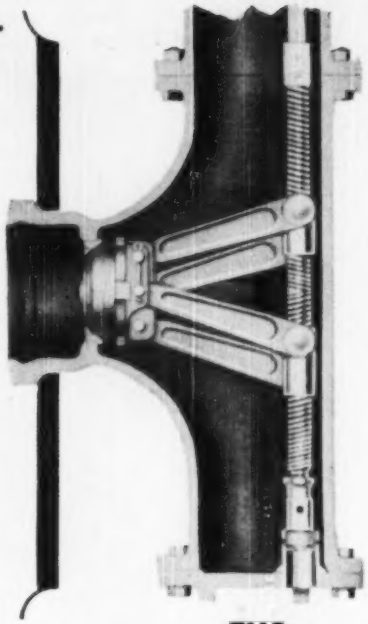
¶ Since its founding half a century ago, this firm has concentrated on the original underwriting and distribution of bonds, notes and debentures—exclusively. Halsey, Stuart's specialized knowledge and sizable inventories of bonds may be turned to good account by those who invest the funds of pension programs. Send without obligation for our latest offering list.

❑ ❑ ❑

HALSEY, STUART & CO. Inc.

123 SOUTH LA SALLE STREET, CHICAGO 90 • 35 WALL STREET, NEW YORK 5
AND OTHER PRINCIPAL CITIES

No Sir.... that RENSSELAER MAIN VALVE *can't open by barrel breakage* IT'S MECHANICALLY LOCKED SHUT

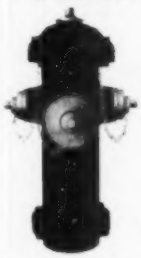


HERE'S another feature of the famous Rensselaer Hydrant — NO FLOODING if barrel is broken. The main valve is MECHANICALLY LOCKED shut by steel forgings bearing solidly against the case. Valve seats stay tight—won't leak or scar. This Hydrant can't open unless the stem is rotated—and since it opens with the pressure, it opens EASILY and quickly.

What's more, if the standpipe is broken off, the ground line flange makes replacement quick and easy —no pavement breaking, no digging.

Yes, this Rensselaer Hydrant is a first-class investment. All working parts lift out easily, quickly. No water hammer. Drains fast without clogging. Solid bronze gives long life to vital parts. In short, SOUND DESIGN, a sound buy, proven by thousands in service making good the Rensselaer reputation. See a Rensselaer Representative for details—just call our nearest office.

THE FAMOUS RENSSELAER COREY HYDRANT



See how....
THE FLANGE AT GROUND LINE ELIMINATES DIGGING UP

LEADERSHIP FOR OVER 65 YEARS

RENSSELAER VALVE COMPANY

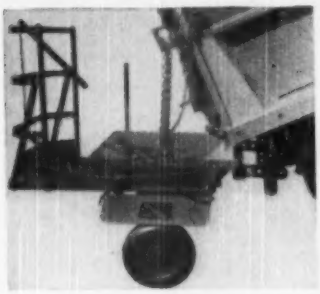
Hydrants • Gate Valves • Square Bottom Valves
Check Valves • Tapping Sleeves and Valves • Air Release Valves

TROY, NEW YORK

Division of Neptune Meter Company

Atlanta, Bala-Cynwyd, Pa., Chicago, Denver, Haverhill, Mass., Kansas City, Los Angeles, Memphis, Oklahoma City, Pittsburgh, San Francisco, Seattle, Waco.

New Wausau Spreader Features Operator Safety



Designed, engineered and built by Wausau Iron Works, Wausau, Wis., the new Wausau trailer-type spreader emphasizes operator safety while providing positive control of thickness, width and direction of spread. It is a low-cost, self-contained unit that can be attached in a few minutes to any dump truck.

The sturdy axle and differential provides power for both hopper agitation and spinner, discharging an even coating of sand, cinders, chips, lime, calcium, or other material from 8 to 20 feet, depending upon truck speed and fender setting. Thickness of the coating is regulated by a lever, to open and close hopper jaws, within safe, easy reach of the operator.

Width of spread and control of left side for on-coming traffic are accomplished by raising or lowering directional "fin," or fender—regulated by simple and positive lever which is also within easy reach. Operator stands on a platform built of grating that is non-skid and self-cleaning.

The operator is protected from the side and back by a curved basket-like steel guard. Hopper capacity is about 2 cubic feet; hopper is 36 by 33 inches at the top and 10 inches square on the bottom—9 inches deep. Total weight including truck hitch is 410 pounds.

Tools and Equipment For Water, Gas, Sewer Lines

One of the major groups of maintenance tools widely used by municipalities is pipe line equipment. Most of the variety of items in this group are brought together in the 125-page catalog of the Joseph G. Pollard Co., New Hyde Park, Long Island, N. Y.

The first ten items consist of burners for melting Leadite, Hydro-Tite, Mineralead, and Ex-X1-Cell sewer seal. Other heating equipment includes a torch flame burner for heating pipes for bending, and for drying or thawing materials; a firm gun for weed-burning; blow torches and melting pots.

For handling pipe there is the Pollard gondola derrick which lifts 1500 pounds and swings a complete circle; a truck derrick of the same capacity, and three models of tripod derricks.

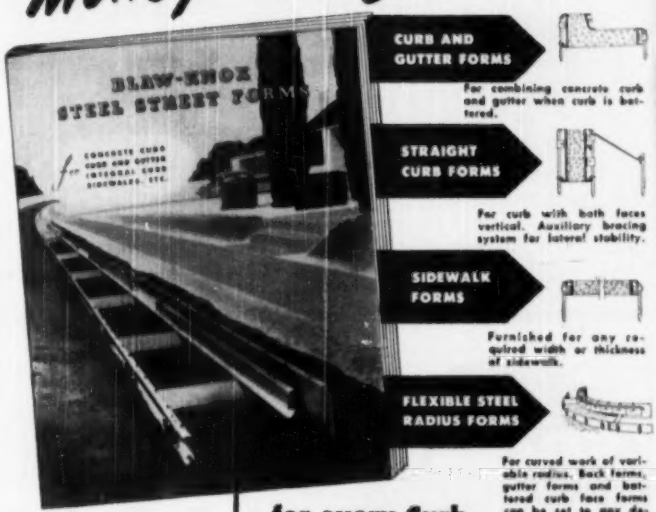
The Pollard curb and valve box cleaner was designed by a waterworks man, and fire trucks as well as water maintenance trucks carry the combination hydrant wrench and spanner. A water and gas main caulking tool outfit caulks mains up to 12-inch.

Pipe cutters include the Pilot for asbestos, cement and clay pipe; the Strickler ratchet cutter and the Pollard Ellis type pipe cutter for metal pipe.

Pipe not only has to be laid and repaired; it often has to be located. This is accomplished by such instruments and devices as the Geophone, the Aqua valve box locator, the Pollard magnetic dipping needles, and the famous Fisher M-scope finders and leak detectors. Hydrants are easy to find but in winter they can be frozen fast. The Pollard Steam Thawer raises steam in four minutes. Compact, and weighing only 28 pounds, the three-gallon steam generator operates 40 minutes and can be refilled without shutting off the burner. The catalog also lists a line of Steam Thawers operating on acetylene for hydrants, and gasoline for larger thawing jobs including culverts and sewers.

For pumping there are the Carter Humdinger diaphragm and centrifugal pumps powered by a two-hp, single-cylinder Briggs and Stratton, and a 5-hp, single-cylinder Wisconsin motor, respectively; and the Edson diaphragm trench pumps.

28 PAGES OF *Money Saving Ideas!*


BLAW-KNOX
STEEL STREET FORMS
CURB AND GUTTER FORMS
For combining concrete curb and gutter when curb is battered.
STRAIGHT CURB FORMS
For curb with both faces vertical. Auxiliary bracing system for lateral stability.
SIDEWALK FORMS
Furnished for any required width or thickness of sidewalk.
FLEXIBLE STEEL RADIUS FORMS
For curved work of variable radius. Back forms, gutter forms and battered curb face forms can be set to any desired radius.

Send for **BULLETIN 2259** *today*

28 pages of detailed illustrations show form set-ups for every type of work with complete instructions on how to use them. You'll find *your* job illustrated, making it simple to select the forms you need. Start your set of Blaw-Knox Steel Forms now—expand it any time to meet future needs. Write for your copy of Bulletin 2259 today!

for every Curb, Gutter and Sidewalk Job!

Get this big money-saving bulletin now—see how easy it is to save money and speed completion of every job with Blaw-Knox Steel Curb and Gutter Forms. There's no need to use expensive lumber and carpentry labor when Blaw-Knox Steel Forms do the job BETTER (without costly hand finishing)—FASTER (they're so easy to set and strip)—and CHEAPER (you can use them over and over, in combinations to meet every job requirement, fit every shape).

BLAW-KNOX DIVISION of Blaw-Knox Company

2009 Farmers Bank Bldg., Pittsburgh 22, Pa.

Birmingham • Chicago • New York • Philadelphia • Washington

BLAW-KNOX

How Does Calcium Chloride *Improve* COLD WEATHER CONCRETE?

"The Effects of Calcium Chloride on Portland Cement" is a semi-technical book that clearly presents the facts on the use of Calcium Chloride. It is filled with graphs, tables, charts and contains much material not heretofore available. This information will be of great interest to contractors, architects, engineers, plant operators and men in allied fields. For your copy, write on your company letterhead to the address below . . . there is no obligation.

SOLVAY Calcium Chloride

- CUTS DELAYS
- SPEEDS STRENGTH
- ADDS EXTRA STRENGTH

SOLVAY SALES DIVISION

Allied Chemical & Dye Corporation

Dept. 61-11, 40 Rector Street, New York 6, N. Y.

SOLVAY Calcium Chloride

TREATED ABRASIVES

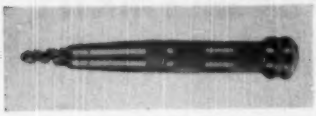
- Stop skids quicker
- Last longer . . . go further
- Will not freeze in stock piles

SOLVAY SALES DIVISION

Allied Chemical and Dye Corporation

40 Rector Street, New York 6, N. Y.

New 3-Way Fog Nozzle



A new type of 3-way fog nozzle, manufactured by the Bete Fog Nozzle, Inc., 85 Pierce St., Greenfield, Mass., will extinguish oil, electrical, paint, and many other types of fires with the least possible water, according to the manufacturer.

The new unit can be changed from full fog to straight stream to complete shut-off by a turn of the handle. The nozzle produces more fog at lower pressures, yet is self-cleaning and practically non-clogging because of a patented spiral tip and movable core.

The Bete G-5 can be operated on any pressure from 30 to 150 pounds, using about 8 gpm for fog and 10 gpm for straight stream, at 100 pounds. Made of polished stainless steel and chrome plated brass, the nozzle is regularly furnished with a standard garden hose thread, or ¾ and 1 inch chemical or national standard thread.

One-Man Motor Plow Eliminates Snow Shovel

The man with the snow shovel may soon be as out of date as the man with the horse and buggy. The Sensation Snow-Blo, manufactured by Sensation Mower, Inc., Ralston, Neb., is equipped with a 2½-hp gasoline engine; scoops a 16-inch path through snow up to 12 inches deep. A gear drive transmits power to the wheels—the operator merely guides the machine.

The self-propelled Snow-Blo has a snow discharge spout designed so that it can be tipped to throw snow either to the right or to the left of the operator. This speeds operation where snow can be thrown to only one side of the area to be cleared. This feature is particularly desirable where there are long driveways near buildings, hedges, or other obstructions.

The Snow-Blo operates at low cost. A gallon of gasoline provides power for several hours of operation.

A NECESSITY FOR EVERY MUNICIPALITY

The NETCO CATCH BASIN CLEANER with pneumatic controls

Simple • Positive Powerful

PNEUMATIC BUCKETS

Two types of Netco Buckets are available with large capacity: (1) An orange peel type which operates through an opening as small as 16 inches. (2) a clamshell designed to operate through rectangular frames as small as 13½" x 19".

These Cities and Many Others Own One or More

Netco Catch Basin Cleaners

Boston, Mass.
New York City, N. Y.
Indianapolis, Ind.
New Brunswick, N. J.
Harrison, N. J.
East Cleveland, Ohio
Binghamton, N. Y.
Chicago, Ill.
Philadelphia, Pa.
Niles, Ohio

Check these features

- The Netco Catch Basin Cleaner can be mounted on any short wheel base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis.
- The Netco Unit can be removed from truck and chassis in 30 minutes.
- The Netco can be operated continuously because the material removed from catch basins is loaded into other trucks. This unit will average 20 to 30 catch basins per 8 hour day.
- The Netco Bucket closes pneumatically, assuring positive and maximum digging efficiency.
- Positive and simple control of pneumatic bucket, boom swing, hoist clutch and boom brake by compressed air.
- The Bucket is lowered and raised by one cable. Only one hose is required to close it, and it is opened by powerful spring action.
- The Netco has a hoisting capacity up to 1500 lbs.

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

4 RESULTS YOUR TAX DEPARTMENT WANTS AND HOW TO GET THEM

If you have hesitated to consider new methods, new equipment, because of cost, you'll be interested in reading the free manual offered in the coupon below. An actual case history, it describes methods which improved collections of delinquent taxes so greatly, the necessary new equipment more than paid for itself within the first six months.

1 Effective accounting control over assessed valuations from the time the assessment is made.

2 Complete detail of valuations, exemptions and computations on each tax bill, in contrast to a mere tax notice mailed to the taxpayer.

3 Routine billing of all delinquent taxes on current tax bills.

4 A taxpayer's ledger for each parcel of real property and for each individual liable for personal property tax.

You can have any or all of these results...and from a single, responsible source ...Remington Rand. Making, as we do, more than 20,000 office items, we are able to recommend exactly the right combination of methods, machines and equipment to meet your needs economically. Here are quick facts on a few of our many products. Ask our nearest office for details.

Film-A-Record copies bulky original records in microsize to save filing space, to speed up reference and to prevent loss through misfiling. Microdex indexing helps locate any desired document in a minute or less for viewing in full size or making quick, inexpensive copy prints. You can rent *or* buy the equipment.

Foremost Accounting Machine can handle your *complete* tax accounting... including tax lists, bills and receipts. You can switch the same versatile machine quickly and easily to appropriation accounting, payrolls, voucher writing, cash disbursements and practically every other municipal accounting operation.

Kardex Visible Systems give you exclusive control and convenience features. New forms, if you need them, can be designed and supplied by our organization—we have unexcelled printing facilities. Even expert installation of records is available to you from the same single, dependable source—Remington Rand.

Punched-Card Machines. There's a full selection to choose from, for rental *or* outright purchase. With this equipment you can do the following jobs automatically . . . with amazing speed and accuracy. Writing of assessment rolls . . . computation of tax extensions . . . preparation of tax rolls or making of unit tax ledger entries . . . preparation of tax statements.

For your needs we have no reason to recommend anything but the right machines and systems. We make them all

Remington Rand INC. MANAGEMENT CONTROLS REFERENCE LIBRARY, ROOM 2740A 315 FOURTH AVENUE, NEW YORK 10, N. Y.

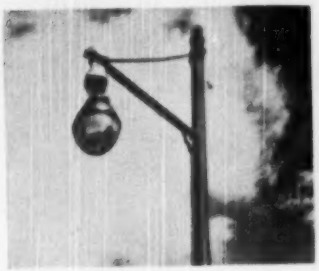
Please let us see Tax Accounting Procedures Manual No. MC 738, describing an actual case where new, more efficient equipment quickly saved its own cost.

NAME_____ TITLE_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Lighting Fixture Hangers



The standard line of Thompson disconnecting and lowering lighting fixture hangers, for indoor or outdoor use, are widely used in plants, parking lots, docks, yards, airport buildings, athletic fields, and swimming pools. The Thompson Electric Co., 1101-20 Power Ave., Cleveland 14, Ohio, has published a new catalog, No. 50, available on letterhead request, which includes detailed information of these hangers, as well as of other lighting equipment and accessories.

The booklet uses 247 photos and drawings to show construction principles, operating features, and typical indoor and outdoor installations.

Mobile Unit for Testing Atomic Radioactivity

A most unusual science laboratory for working with atomic radiation has been built by an American instrument designer in a new type delivery truck. Civil Defense committees of large cities and industrial locations should visit this unit which is completely equipped with all the instruments to identify and measure radioactivity. Civilian and military experts who have inspected it say that in modern war such units could play an important part in atomic defense.

Technicians driving such a mobile laboratory could speed to the scene of the blast. They could determine immediately if radioactivity were present, identify the type of radiation, and measure its danger. Moving quickly around the fringe of the blast, they could tell how far the radioactivity extended.

Ernest H. Wakefield, Director of Radiation Counter Laboratories, Inc., 1844 W. 21 St., Chicago 8, designed the laboratory so that instruments the company makes and sells could be demonstrated to scientists who need such equipment. The truck body is 12½ feet long of 462 cubic feet capacity. Model made by Dodge Div. of Chrysler was chosen because of its low steps which enable visitors to step in and out with ease, and also for the unusual headroom which permits a man 6 feet 4 inches tall to work and operate instruments inside the truck without stooping. The lab is lighted by rows of fluorescent tubing along each side of the roof.

Automatic Chain Saws For Better Cutting

The Titan automatic "Bluestreak" chain saw can handle timber from two feet to twelve feet in diameter. The "Titan Junior" one-man saw is ideal for logging, clearing land, farming, construction work of all kinds, forestry services, arborists,—wherever there is wood to be cut.

Titan saws are equipped with Titan Bluestreak bars and chains, designed for longer and better cutting and ripping. These chains eliminate timber bind, climbing, and running. No swedging or setting is ever needed—operator can sharpen chain on bar. Automatic for complete information.

Write to Titan Chain Saws, Inc., 2700 Fourth Ave., South Seattle 4, Wash., for complete information.

NEARLY 7/8 OF THE WATER YOU SUPPLY MUST ALSO BE REMOVED!

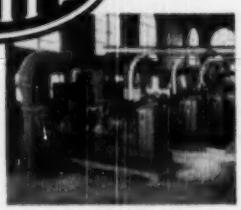
Your complete city water pumping cycle from supply through disposal can be efficiently and economically handled by one make of pump

PEERLESS PUMPS

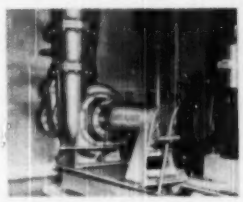
LOOK TO THE LEADER

LOOK TO PEERLESS for undivided responsibility for the whole job

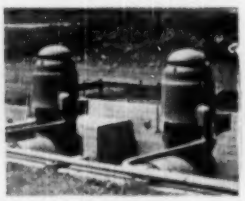
FOR WATER SUPPLY



FOR BOOSTING



FOR SEWAGE DISPOSAL



FOR DRAINAGE

Cut your time, investment and maintenance by standardizing on Peerless as your one source of pumps. Individual descriptive and illustrated Bulletins are available on each of these types of Peerless pumps. Write for your copies.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
Factories: Los Angeles, California, and Indianapolis, Indiana
Offices: New York, Atlanta, Fresno, Los Angeles, Chicago, St. Louis, Phoenix, Dallas, Plainview and Lubbock, Texas; Albuquerque, New Mexico

with INTERNATIONAL "*POWER ON WHEELS*" *for Swift* Snow Removal

You can "make the snow fly" when old man winter fills streets and roads with heaps of frigid flakes. For quick clearance of vital arteries, put International wheel tractors to work. With mounted snowplows and front end shovels, these fast, highly maneuverable tractors open up streets and roads in a short time.

A visit to your International Industrial Power Distributor is the first step in wiping out winter worries. He will help you select the right International tractors for your community. He has a complete line of Internationals to offer and one or more models will exactly fit your needs.

Don't wait for old man winter to paralyze your city or town with blustery blizzards. Buy International "Power on Wheels" now and you can be sure your snow removal forces will "make the snow fly" from your streets and roads.

INTERNATIONAL HARVESTER COMPANY • Chicago

Standardize on Power that Pays

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER

CRAWLER TRACTORS • WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS

Sanitary Drinking Fountains

Bradley drinking fountains are constructed of the same precast marble and stone compositions and according to the same manufacturing processes as pre-cast Bradley Washfountains. They are available in granite, bradstone, marmogran, vari-colored marmorite, black and white marmorite, and sage green marmorite; fittings are of heavy, durable chrome-plated brass.

These fountains are equipped with sanitary, angle-stream heads having built-in volume control and automatic pressure regulator; regularly supplied with self-closing valves, or, if desired, arranged for continuous flow.

Bradley drinking fountains are widely used in buildings of all types—factories, schools, institutions, offices, stores, as well as in parks, playgrounds and on city streets. They are particularly desirable as companion pieces for Bradley Washfountains.

For Precise Liquid Level Control

Presented to the municipal field is a new automatic manometer which precisely determines the height of a liquid column, and indicates this height at a local or remote station. This new indicator, known as the Levelocator, a product of Asch Equipment Co., 11-38 31st Ave., Long Island City, N. Y., reads liquid height to 1/100 of an inch and does it without the need of floats, relying on electronic controls to provide the readings.

The manometer would provide a positive reading for use in water and oil storage tanks; it can be used in connection with altitude valves, in filtration plants where levels are important in the control of the treatment processes, and in other similar locations.

A complete bulletin is available from Asch Equipment Co., describing the Levelocator and listing the other similar equipment that it manufactures.

New Stanley Partner

Sanford K. Fosholt, chief engineer of the Stanley Engineering Co., Hershey Bldg., Muscatine, Iowa, has been made a partner of the firm, according to a recent company announcement. Mr. Fosholt joined the Stanley Engineering Co. in 1938, and served the company as head of the mechanical design section prior to his appointment as chief engineer.

A New Paint to Protect Valuable Property

The U. S. Stoneware Co., whose affiliated company, Ravenna Ceramics Corp., is one of the few manufacturers of grave and lot markers, has a new product of great value to a number of municipal departments. It is a corrosion-resistant plastic paint called Tygon. So certain is the manufacturer of the effectiveness of this product that the bulletin describing it says: "If an ordinary paint will do the job, then it should be used, not Tygon."

Tygon, of two types, "k" and "TP," is suitable for metal surfaces and for concrete, dry or new. The 12-page bulletin tells the story of the paint and its application. It is available from the U. S. Stoneware Co., 5300 E. Talmadge Ave., Akron 9, Ohio.

Durkee Joins Automatic Control

F. A. Durkee, formerly with Industrial Tool and Die Co., St. Paul, and Electric Machinery Mfg. Co., Minneapolis, has joined the engineering staff of Automatic Control of St. Paul, Minn., as electrical engineer in the liquid level control division.

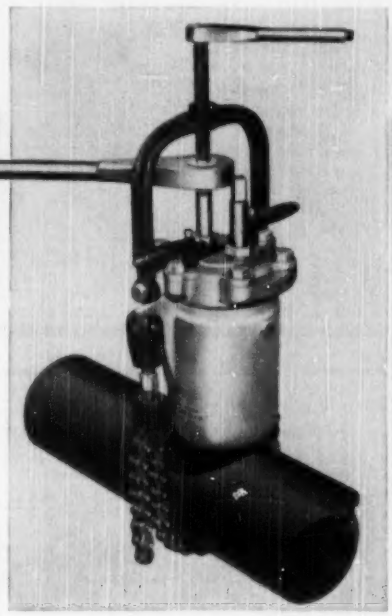
Mr. Durkee has had wide experience in this field as well as in the design and research of special test equipment, transformers, aircraft generators, and other equipment.

DESIGNED FOR THE MAN IN THE DITCH

HAYS

MODEL B TAPPING MACHINE

FOR INSERTING ALL STANDARD MAKES OF CORPORATION STOPS



FASTER . . . Less time required to make a tap • Two ratchet wrenches speed up operations • Head turns freely at all pressures

EASIER HANDLING . . . Shorter height • More rigid attachment to the main • More room in the ditch • Fewer operations—less physical effort required

EFFICIENT . . . Machine fully loaded, ready for operation before placing on the main • No disassembling to insert corporation stop • Flat link chain—positive grip on main

ECONOMICAL . . . Longer life of tools—more taps per tool • Renewable bearings and working parts • Designed to use short pattern taps and screw plugs

If you need a new or better tapping machine, write or wire for our representative to make an on-the-job demonstration of the new HAYS MODEL B Tapping Machine.

HAYS COPPER BRASS LEAD IRON WATER WORKS PRODUCTS HAYS MANUFACTURING CO., ERIE, PA.

You DON'T have to GUESS

The WILKINSON LINE LOCATOR

the original lightweight, compact, precision locator —is POWERFUL.

It locates every part of your underground pipe system, however deep and shows the depth of lines. It's FAST, EXACT, SIMPLE.

Avoid expensive damage to subsurface structures by power trenching machines with the Wilkinson Line Locator, the electronic sleuth.

Spot your

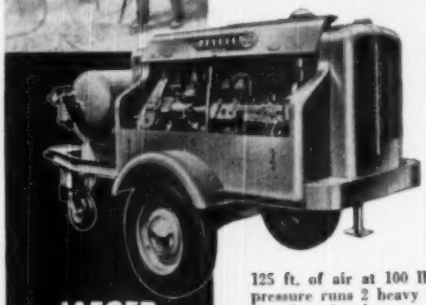
- MAINS
- SERVICES
- STUBS
- VALVES
- BOXES
- COUPLINGS

QUICK
FAST
EXACT

A Quality Instrument

WILKINSON PRODUCTS CO.
P. O. BOX 1774
WILSHIRE-LA BREA STA.,
LOS ANGELES 36, CALIF.

4 days' work
now done in 3



JAEGER MODEL 125 *obsoletes the 105,*

125 ft. of air at 100 lbs. pressure runs 2 heavy or 3 medium breakers at top efficiency—doing 30% to 40% more work than same tools with 105 ft. of air.

All Jaeger "new standard" sizes give you comparably increased production.

See your Jaeger distributor or ask for Catalog JC-8

The JAEGER MACHINE CO.
Columbus 16, Ohio

Other "new standard" ratings are 60—185—250—365—600 cfm.

PUMPS • MIXERS • HOISTS
PAVING EQUIPMENT

KEEP FORDS ALL FORDS
WITH
GENUINE FORD PARTS

•

Made Right, to Fit Right to Last Longer

470 FOURTH AVE.,
NEW YORK 16, N. Y.

Is Information Headquarters

for municipal, waterworks officials, and engineers wanting further details on printed matter from the manufacturers advertising in these pages. Our Reader Service Department will be glad to forward any literature or special requests you mail to us at the above address.

THE AMERICAN CITY

A STATEMENT
OF
ADVERTISING PRINCIPLES

1. Good Advertising— aims to inform the consumer and help him to buy more intelligently.

2. Good Advertising— tells the truth, avoiding misstatement of facts as well as possible deception through implication or omission. It makes no claims which cannot be met in full and without further qualification. It uses only testimonials of competent witnesses.

3. Good Advertising— conforms to the generally accepted standards of good taste. It seeks public acceptaace on the basis of the merits of the product or service advertised rather than by the disparagement of competing goods. It tries to avoid practices that are offensive or annoying.

4. Good Advertising— recognizes both its economic responsibility to help reduce distribution costs and its social responsibility in serving the public interest.

Advertising Federation of America

Remington Appoints

M. George Bastianello has been appointed assistant sales manager of the Business Services departments of Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.

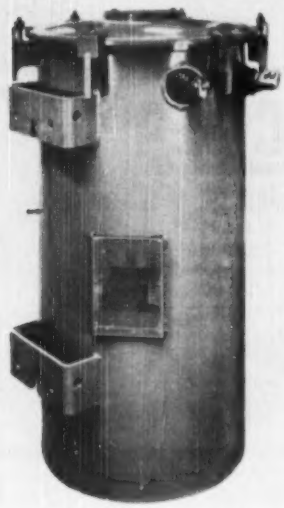
M. G. Bastianello

Mr. Bastianello, who has had wide experience in industrial and consumer research, cost accounting, and methods engineering, will serve the company in its management methods and service operations.

He joined the company recently in coordinating the expansion of its management method and service operations.

Mr. Bastianello is a member of the American Market Association, National Association of Cost Accountants and the New York State Chamber of Commerce.

New Transformer for Series Street Lighting



Compact constant current transformer enclosed in a pole-type tank of steel plate.

A new Hevi Duty static type constant current regulator transforms constant potential to constant current for control of series lighting for streets, subways and highways. The absence of inrush current surges, with a resulting increase in lamp life, is one of the outstanding advantages of this regulator. Other features are the availability of special taps to enable dimming, and the ability to flash the lights by shorting the secondary. Bulletin CCR-478 illustrates and describes the operation and construction of this new unit made by Hevi Duty Electric Co., Milwaukee 1, Wis.

COLE

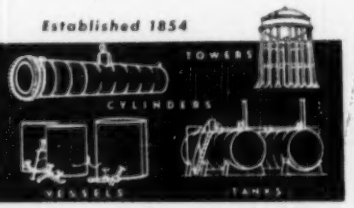
TANK DESIGNING BACKED BY 95 YEARS EXPERIENCE

* Cole has specialized in the design, fabrication, and erection of elevated tanks for four generations. This long experience enables us to handle your assignment with dispatch, and to your complete satisfaction . . . We design, fabricate, and erect, in capacities from 5,000 to 2,000,000 gallons, with hemispherical, ellipsoidal, or conical bottoms.

Write for prices, stating capacity, height to bottom, and location.

R. D. COLE MANUFACTURING CO.
NEWNAN, GA.

Established 1854



FLASH!

New Users of Automatic Voting Machines

Baltimore County	Maryland	Prince George's County (Marlboro)	Maryland
Denver	Colorado	Arlington County	Virginia
Arapahoe County	Colorado	St. Louis Park	Minnesota
Alamosa County	Colorado	East St. Louis	Illinois
Pima County (Tucson)	Arizona	Sullivan County (Bristol)	Tennessee
Sarasota County	Florida	Lucas County (Toledo)	Ohio

These communities join the list of more than 5,000 cities and towns now enjoying the advantages of AUTOMATIC VOTING MACHINES.

AUTOMATIC VOTING MACHINE CORPORATION

Jamestown, New York

HAISS CLAMSHELL **BUCKETS** Quality Since 1890

Excavating • Trenching • Dredging • Rehandling

Capacities ¼ to 3 Yards . . . Ask for Bulletin No. H-850

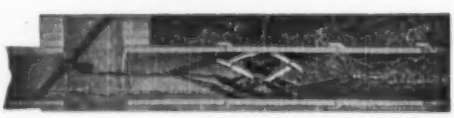
George Haiss Mfg. Co., Inc. division of **Pettibone Mulliken Corp.**

141st to 144th St. on Park Ave., NEW YORK 51, N. Y. Phone Mott Haven 5-2200

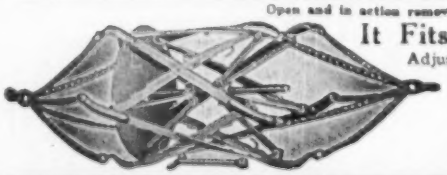
4700 W. Division St., CHICAGO 51, ILLINOIS Phone Spaulding 2-8300

HAISS NEW YORK CHICAGO — UNIVERSAL CEDAR RAPIDS

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. Nappanee, Ind.

Custom Made Street And Traffic Signs

A new sign service is announced which provides small cities as well as large with individualized street and traffic signs. Porcelain enamel signs are available in any size or shape and in any quantity. The company will produce them to any specifications, designing signs when requested.

Particulars will be supplied on request to the Porcelain Enamel Finishers, 3221 W. 30th St., Chicago 23, Ill.

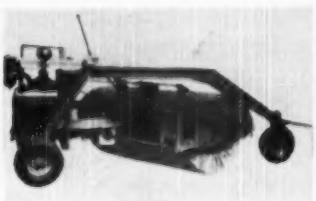
Miro-Flex Promotions

H. N. Carver, president of the Miro-Flex Co., Inc., 1824 East 2nd St., Wichita, Kansas, recently announced promotions which follow the company's expansion program, begun in April with the acquisition of the Inter-State Mfg. Co. of Chicago.

Those promoted were D. D. Fleming, former stamp shop foreman, who was appointed purchasing agent, and H. F. Cate, who will succeed Mr. Fleming as foreman.

The Miro-Flex Co. originated the reflecting flare, and has pioneered in the manufacture of street name assemblies and traffic control signs.

New Trailer Sweeper



A new Little Giant trailer sweeper, designed for municipal maintenance, snow removal for airports, and for cleaning the subsurface of roads before asphalt is applied in road construction, has been announced by Little Giant Products, Inc., 1585 North Adams St., Peoria, Ill.

Of the three-wheel trailer type, and powered by a 15-hp Wisconsin air-cooled engine, the Little Giant sweeper is built for one-man operation towed behind a car, truck or tractor. Use of oversized parts makes for unusually rugged construction with little or no maintenance required. Brush is available in 6, 7, 8, or 9-foot lengths, with a 32-inch diameter. The frame, of 4-inch structural steel channels, is supported by three wide base wheels with 18-inch by 5.50—six-ply balloon tires. Frame length is 11 feet overall with an exceptionally low overhead clearance of 4½ feet.

The sweeper will be distributed through Little Giant sales representatives to all U. S. cities.

—M-SCOPE—
PIPE LOCATOR

TYPE AB — 1950 MODEL

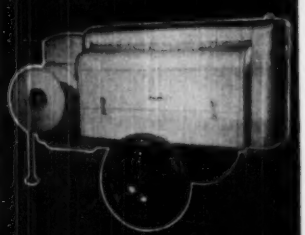
- Metal Cased Cabinets
- One Man Operation
- Unsurpassed Efficiency
- Fully Guaranteed
- Immediate Shipment

PRICED ONLY $149.50

FREE LITERATURE

FISHER RESEARCH LAB., Inc.
Palo Alto California

Compressor Users:
Get the facts
about the new
SMITH
105-P
Compressor



Packs a wallop
FOR POWER!
Costs less to Operate!

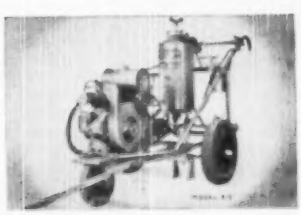
Powered with the new Chrysler Ind. 15 Industrial Engine with 277 Cubic inch displacement. Delivers 105 cubic feet per minute. Sodium cooled valves and Stellite valve seats in engine. Stainless steel disc type valves and Manganese Bronze seats in compressor. Smooth even flow of air. Self starter, battery ignition, voltage regulator, large radiator capacity with thermostat for quick warm-up. Heavy duty with light weight (2100 lbs.)

Write for literature and prices.

Also write for information on
The New SMITH
MODEL 70-P COMPRESSOR

SMITH
Air Compressors
Gordon Smith & Co. Bowling Green, Ky.
425 College Street

This is the Kelly-Creswell Model that will SOLVE your Municipal Zone-Marking Problems.



Uniform Cross-Distribution
Clean-Cut, Attractive Lines
Pressure Cleaning Equipment Air-Actuated Traction.
More Highway Zone-Marking Material is applied thru K-C Equipment than thru any other make. ***There must be a reason.***

KELLY-CRESWELL CO., Xenia, Ohio

T-LOCK AMER-PLATE

THE NEW PROTECTIVE LINING FOR CONCRETE PIPE AND STRUCTURES

T-LOCK AMER-PLATE is a practical sheet lining that provides enduring and economical protection despite extremely corrosive conditions. It is the result of many years experience in the manufacture and application of AMERCOAT protective coatings for all types of industries.

This heavy-duty protective lining is especially adapted for use in sewage lines and structures exposed to severe corrosive action where permanent protection is of vital importance.

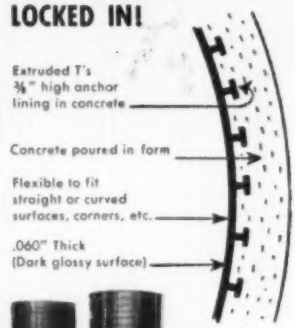
Composed of inert resins and plasticizers, AMER-PLATE is impervious to gases, highly resistant to most acids, alkalies, alcohol, oils, salts and petroleum products, has very low moisture vapor transfer and will not support combustion. Odorless and tasteless, it contains no toxic materials.

T-LOCK AMER-PLATE is applied to the inner forms of concrete pipe, structures and tanks. When the concrete is poured, the Tees are embedded and locked into the concrete and become an integral part of the finished product.

Over 10 years of development and testing have proved it to be practically indestructible in the service for which it is designed.

Amercoat CORPORATION
A Division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

Here's how this tough, long-lasting, corrosion-resistant lining is LOCKED IN!


Extruded T's ¾" high anchor lining in concrete
Concrete poured in form
Flexible to fit straight or curved surfaces, corners, etc.
.060" Thick (Dark glossy surface)

Placing pipe reinforcing cage over T-Lock sheet set up around inner-form.

Example of T-Lock sheet formed around complex structural members.

Lucas County, Ohio, Tests Two-Way Police Radio

Deputy Sheriff Harry Williams of Lucas County, Ohio, tests one of the County's new 2-way, FM Motorola radio-equipped Harley-Davidson police motorcycles. These "talking motorcycles" are virtually radio transmitter-receiver stations on wheels; the "press-to-talk" system permits instant communication with headquarters, provides motorcycle police with vital link in county areas where telephones are not available.

Form New Consulting Firm

The firms of Edwards and Kelcey, and Lawrence T. Beck and Associates, consulting engineers, have formed a new partnership, of Dean G. Edwards, Guy Kelcey, and Lawrence T. Beck. The new firm, to be known as Edwards, Kelcey and Beck, will specialize in modern expressway, traffic, terminal, transportation, sanitation, and water supply problems. Offices will be maintained at 250 Park Ave., New York, and 3 William St., Newark, N. J.

Clock-Around Protection Of Active Municipal Records

Vaults are either adequate, or inadequate. They will protect their contents against fire, water and impact—or they won't. No one really knows how much heat a vault will resist. The National Fire Protection Association has prepared regulations for the installation of vaults, but only one vault in ten meets those specifications. Vaults that meet the National Fire Protection Association's specifications can save records if the records are in the vault when the fire strikes.

Remington Rand recommends that each municipal department have its own Safe-Cabinet record protection equipment. The records and files are then stored and protected where they are used, for every Safe-Cabinet is a certified safe. Vaults and safes are compared in a sprightly 12-page color-illustrated booklet available from Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.

Johnston Appointments

Thomas W. Simmons, president of the Johnston Pump Co., 2324 East 49th St., Los Angeles, Calif., has announced the election of Kenneth G. Lundie as vice-president in charge of sales, and Perry Brown as vice-president in charge of engineering.

Perry Brown

Mr. Brown was formerly chief engineer at Johnston, and Mr. Lundie was formerly sales manager. Both men have been in the vertical pump industry for many years, with Johnston Pump Co. and other manufacturers.

K. G. Lundie

The new vice-presidents were appointed at a recent board of directors' meeting of the company.

The Johnston Pump Co. are the manufacturers of deep-well pumping equipment used in municipal and industrial water supply work.

How CLEANLINESS is AUTOMATIC with WASTE RECEPTACLES

● Everybody is automatically a member of your cleaning department by conveniently placing Bennett Bilt Waste Receptacles to invite their use. These waste receptacles are sanitary, economical and a major help to cleanliness and neatness. *Put them to work for you today.*

ONLY WASTE RECEPTACLES HAVE ALL THESE FEATURES

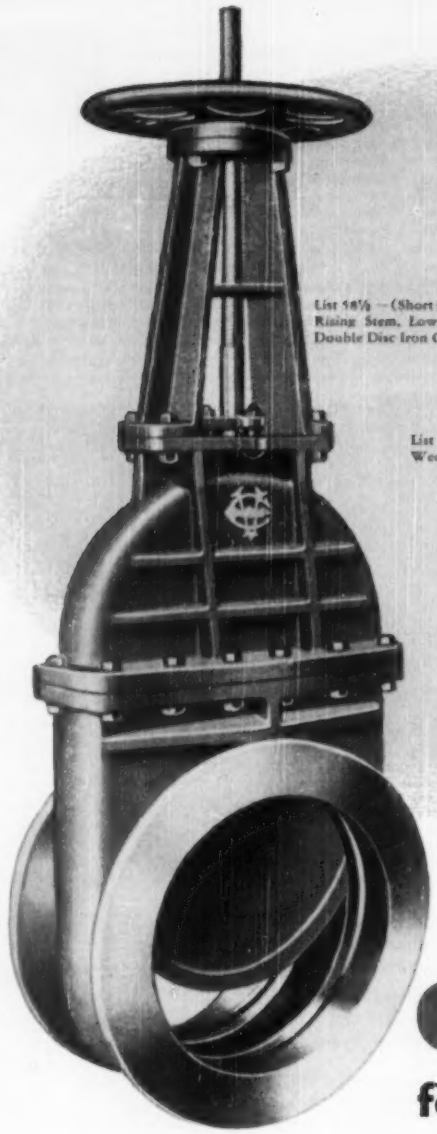
- Non-rusting stainless steel feet eliminate rusting and rust marks
- Made of extra heavy-gauge Mayari R, Bethlehem's corrosion resistant steel
- All-welded construction
- Smooth exterior surface . . . nothing to catch and tear clothes
- Reinforced corners
- Strong springs keep doors closed providing greater sanitation and eliminating fire hazards
- Rounded corners for structural strength and pleasing appearance
- Baked enamel finish . . . white or green

These are a few of the many features that make Bennett Bilt Waste Receptacles a natural "buy." Quality and every consideration for hard usage are self-evident both inside and outside of these receptacles.

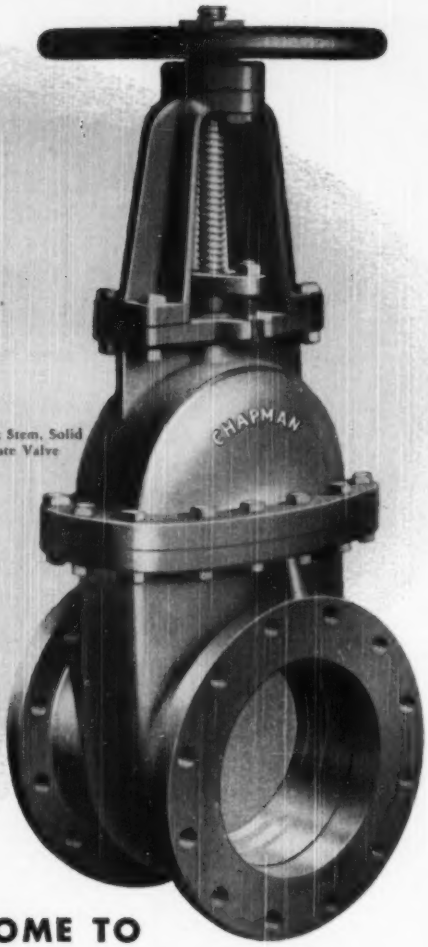
Write for fully-illustrated catalog TODAY.

Independently hinged doors
High tension springs keep doors closed
Burlap bags or galvanized liners are quickly removed

THE BENNETT MANUFACTURING CO., ALDEN, N. Y.
CUSTOM METAL CRAFTSMEN SINCE 1906



List 18½ — (Short face to face), Rising Stem, Low Pressure, Double Disc Iron Gate Valve



List 25 — Rising Stem, Solid Wedge, Iron Gate Valve

COME TO CHAPMAN

for Standard Gate Valves

. . . For all purposes . . . For all pressures . . . In all sizes

Be sure to check Chapman first whenever you need standard gate and check valves. Here you'll find iron valves in a complete range of sizes—both solid wedge and double disc types—for a complete range of working pressures from 25 to 800 lbs. for steam, water, oil or gas service. Operation may be by hand wheel, with or without bevel or spur gearing, floor stand, electric motor, hydraulic or pneumatic cylinder.

If, however, you need bronze valves — we have them. Just as we have a complete line of steel valves. And valves of many other types such as tilting disc, iron and steel check valves. Whenever special valves for unusual service are required, Chapman engineers will be glad to help you develop them.

The Chapman Valve Manufacturing Company

INDIAN ORCHARD, MASSACHUSETTS

Truckers Get "Model" Greeting

In a Model Fire Truck

Leland James (left), new president of the American Trucking Associations, greets Ruth Woods, attractive model, as she arrives at the Waldorf-Astoria Hotel in New York in Mack fire engine, with bull pup, "Mack." H. W. Dodge (right), executive vice-president of Mack Trucks, Inc., extends a welcoming hand as Ruth extends a shapely limb. Pup "Mack" is non-committal. The American Trucking Associations' annual convention was held at the Waldorf-Astoria the week of October 2nd.

PHOTO BY TOMMY WEBER

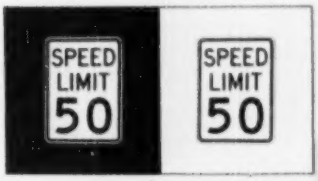
BRONZE TABLETS

SPECIALISTS IN TABLETS
AND HISTORICAL MARKERS
CAST IN IMPERISHABLE BRONZE
FOR EVERY CIVIC NEED
Design Counsel — No Obligation

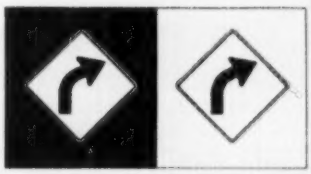
FLOUR CITY
ORNAMENTAL IRON CO.
DEPT. A • MINNEAPOLIS 6, MINN.

LYLE

Lyle signs are official signs. They conform to various state highway department requirements and the U.S. Manual of Public Roads. Lyle has been supplying official signs for over 35 years. Every Lyle sign is an official sign... if it's a Lyle sign, it's a correct sign... plain or reflectorized.



TRAFFIC



SIGNS

Lyle is proud of the long list of cities, towns, counties and states for which it has been the principal sign supplier over the years. Lyle has won and held this patronage on quality, service and economy. May we figure on your requirements now?

LYLE SIGNS, INC.
2720 University Avenue S. E.
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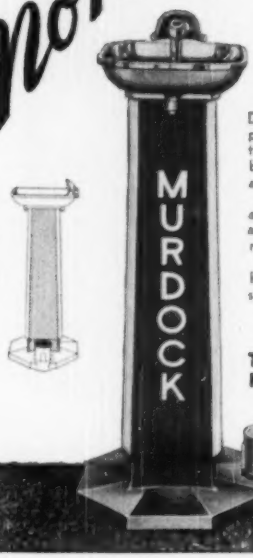
Trafficone

28" high
15" base dia.

ENTERPRISE SALES CORPORATION
231 W. Olive Avenue — Burbank, California

New and No Pollution



Here is an Outdoor Drinking Fountain that is pollution proof because there are no connections between outside sources and the supply line.

Any fear of contamination due to back siphonage is completely removed.

Pedal-operated and built to give YEARS of satisfactory service.

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Cincinnati 2, Ohio

Aeroil **WINTER CONSTRUCTION HEATERS**

KEEP WINTER JOBS RUNNING AT SUMMER SPEED

- Concrete Heaters
- Thawing Torches
- Steam Plants
- Portable Coil Water Heaters
- Salamanders
- Ground Thawers

AEROIL PRODUCTS CO., INC.
5 Wesley Street — South Hackensack, N. J.
Also Chicago, San Francisco, Dallas, Seattle, Pittsburgh, Dedham (Mass.), Jacksonville, Los Angeles.

THE MUNICIPAL INDEX

Saves your catalog from the wastebasket. Reaches the buyer when he's buying.

Approximately 16,000 city and town officials and private water company superintendents who receive the annual Municipal Index use it regularly as a buying guide.

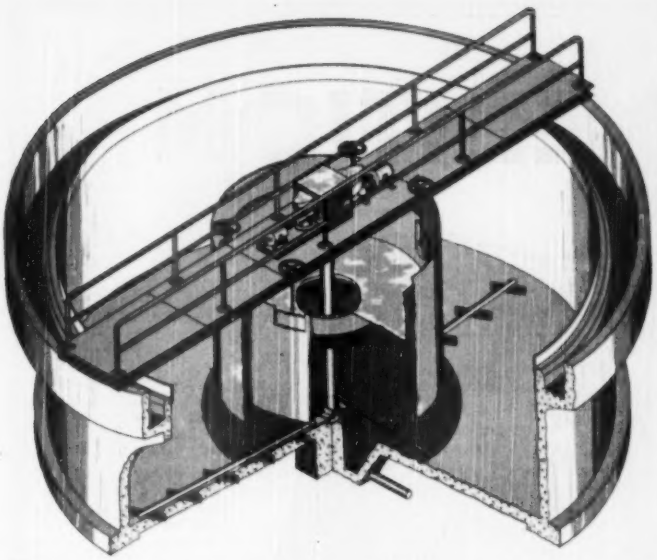
THE MUNICIPAL INDEX
470 Fourth Avenue — New York 16, N. Y.

TOWN PLANNER

WANTED

Government of PAKISTAN

Applications are invited for the post of Town Planner with the Government of Pakistan. The appointment will be on contract for 3 years in the first instance, but the tenure may be extended at the discretion of the Government of Pakistan. Pay for a person recruited in the U. S. Rs. 3000 (approximately $909.00) per month. Passages provided for self and family on joining. Candidates must have minimum qualifications as below (or equivalent qualification recognized by institutions of the countries of which applicants are members): (1) Member or Associate Member of the American Institute of Planners and/or American Institute of Architects, with academic degrees commonly linked thereto; (2) Member or Associate Member of Town Planning Institute; and after qualifying as such, at least five years' experience of large schemes of city development, satellite towns, improvement of existing built up area etc. Applications giving age, references, full particulars of qualifications and experience, and details of appointments held in chronological order, should reach the First Secretary, Embassy of Pakistan, 2201 'R' Street, N. W., Washington, D. C., by November 18, 1950.



Mixing, flocculation, settling clarification and sludge removal are all combined in a single unit.

One Unit Water Treatment

Only one unit is needed for chemical mixing, flocculation, settling, and clarification, according to the American Well Works, Aurora, Ill. In this case, American's new Flocsettler is it.

According to the manufacturer, Flocsettler contains in one structure all of the features of water and waste treatment that have to be supplied separately in conventional designs.

The unit consists of a circular tank containing a smaller circular tank. The small tank is divided into an upper and a lower level. The upper level receives the raw water and the coagulating chemicals in slurry form. It is at this point that the two are mixed. The lower level contains the flocculation zone. The water and chemicals pass into it through a rotating "circulator." The differential pressure which exists between the mixing and flocculation zones produces a positive return flow of slurry through the annular section surrounding the two zones. As the sludge builds up, it settles to the bottom and forms a blanket across the lower portion of the larger tank. Sludge is drawn to the point of discharge by scraper arms.

The manufacturer points to many advantages in the new unit. Only gentle velocity currents are needed to create the reactions. There is no violent action to destroy floc structure. The sludge blanket formation is uniform and enmeshes fine particles and filters the rising flow. The Flocsettler design principle allows recirculation of the lightest particles of the sludge blanket to the flocculation zone.

The Flocsettler is designed for turbidity removal, water softening, iron removal, and other special treatment when required. A complete set of technical leaflets may be obtained from the manufacturer.

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AIR PILOT
LANTERN

★ STURDY
★ FLAME WINDPROOFED
★ BURNS 30 HOURS
★ EASY TO LIGHT

SPECIFY
LITTLE AIR PILOT
—THE LANTERN THAT MAKES GOOD ON THE JOB
ORDER FROM YOUR DISTRIBUTOR

For more Embury LITTLE AIR PILOT Lantern facts, write

EMBURY MANUFACTURING CO.
230 Allen Street Warsaw, N. Y.

The NEW SKYLINE "90"
LOADER

DELIVERS FOR LESS THAN $500

FOR SNOW, LEAVES, DIRT, TRASH, SAND AND GRAVEL

SCOOPS · LOADS · DIGS · DOZES . .

Here's a fast-moving piece of equipment which will play a major part in keeping your city clean all year around. In the winter it scoops snow and ice, scatters sand on slick streets. In the spring you'll find the Skyline Loader scooping dirt and leaves from gutter, moving trash, loading sand and gravel for resurfacing roads, even handling garbage. You'll find your new Skyline "90" Loader the best investment your city ever made.

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1331 McLEAN BLVD WICHITA, KANSAS

1950 EDITION

Over 800 pages, giving names of City Officials, Maps and Population figures and Condensed Catalogs and listings of manufacturers of equipment and supplies for municipalities. This record-breaking 24th Edition is being constantly used by municipal officials throughout the country, who are interested in having close at hand illustrations and descriptions of the products of responsible manufacturers who want municipal business.

The Municipal Index

470 Fourth Avenue **New York 16, N. Y.**

C. A. Orr, Union Metal Board Chairman, Dies

Chester Andrew Orr, 67 chairman of the board of The Union Metal Manufacturing Company, Canton, Ohio, died Oct. 10 of a cerebral hemorrhage.

C. A. Orr

Mr. Orr joined Union Metal in 1925. He had been vice president and general manager and president before he became board chairman in 1937.

At the time of his death he was president of The Superior Switchboard & Devices Co., a director of the Ohio Ferro-Alloys, Corp., a director of Harter Bank & Trust Co. and president and director of the American Concrete Corp. of Chicago. Formerly president and director of the Dual Parking Meter Co. of Canton, he served as a member of the National Electric Manufacturers' Association's board of governors.

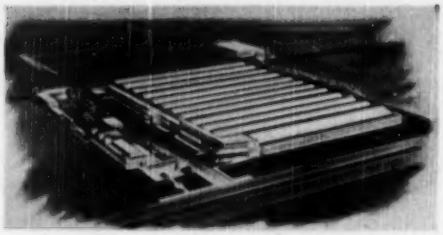
Mr. Orr was born on Dec. 6, 1882, in Syracuse, N. Y. He received his B. S. in metallurgy and mining engineering in 1905 from Case School of Applied Science. Besides his industrial activities, he devoted considerable time to community service.

For Neater Lawns

Although the new power-operated lawn edger and trimmer manufactured by the Modern Mfg. Co., 160 N. Fair Oaks Ave., Pasadena, Calif., is small enough to be easily handled, it is large enough and strong enough to do the continuous work demanded by parks and other public grounds. Perfect, accurate, precision borders can be neatly and effortlessly cut by anyone with this specialized machine, according to the manufacturers.

The cutting head has been designed to cut at a variety of angles, thereby increasing the number of jobs it can perform effectively. It is especially valuable where long continuous curbs border city parks or large estates, and it trims flush to the trunks of trees, or in places inaccessible to the hand or power mower.

$2,500,000 Expansion Program for McCulloch



Architect's drawing of the McCulloch Motors Corp.'s Los Angeles plant as it will look when additional buildings are completed. The company's $2,500,000 expansion program now underway will increase productive space and capacity of the plant by 300%, according to an announcement by Robert P. McCulloch, president. Present plant area, 75,000 square feet, will be increased to 324,000 square feet by the addition of eight new manufacturing bays.

OREN

FIRE APPARATUS

ONE OF 4
1000 G.P.M.
OREN
MODEL 1600/1000
PUMPERS

SERVING ROANOKE VIRGINIA

. . . (You Can't Fool Your Own Hometown!)

OREN ROANOKE CORP.
ROANOKE 16, VIRGINIA

SEWAGE PLANT EXPANSION
. . . WITHOUT BOND ISSUE!

It's easy and economical to convert most overloaded sewage plants to the BIO-CHEMICAL PROCESS. Increase the capacity of existing activated sludge plants as much as 100% . . . small conversion costs can be paid for out of operating savings.

Get the most . . . the best . . . for the smallest possible amount of the taxpayer's money with the BIO-CHEMICAL PROCESS.

Write for further information.

the Bio-Chemical Process

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Indianapolis 8, Indiana

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New York 5, New York

STREET MARKING *and* TRAFFIC CONTROL

Signs of Efficiency

ZINC COATED, BONDERIZED STEEL, BAKED-ON ENAMEL GIVES RUGGED SIGN EXTRA LONG, USEFUL LIFE.

Efficient governing bodies specify Miro-Flex for street marking and traffic control jobs because they know motorists appreciate good signs. They know too, that distinctive, readable traffic control signs go hand in hand with traffic safety. Miro-Flex signs are deeply and uniformly embossed on zinc-coated, bonderized steel, and are also available with glass or Lucite buttons. Citizens like the signs they can see . . . signs by Miro-Flex. Send today for our catalog.

MIRO-FLEX STREET NAME ASSEMBLIES GIVE CLEAR DIRECTIONS, YEAR IN AND YEAR OUT. 1150

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WATER RATES

from selected cities across the country, with data on the type of water system each supports.

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SEWER SERVICE CHARGES

now in successful use supporting well-operated sewage works giving examples of charges based on

plumbing fixtures
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Title .....

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R. J. Faust Named To A.W.W.A. Office

The board of directors of the American Water Works Association, Inc., 500 5th Ave., New York 18, N. Y., has appointed Raymond J. Faust of Lansing, Mich., as assistant executive secretary.

R. J. Faust

A board of directors' member of the A. W. W. A.'s Michigan Section, Mr. Faust is Chief of the Water Supply Section, Division of Engineering, Michigan Department of Health. He joined the Association in 1938, has been active in the Michigan group, received the Fuller Award in 1946 and was elected director in 1949.

Mr. Faust was born Sept. 16, 1901 in Millersburg, Pa., and received his B. S. in Sanitary Engineering in 1923 and his C. E. in 1935 from Pennsylvania State College.

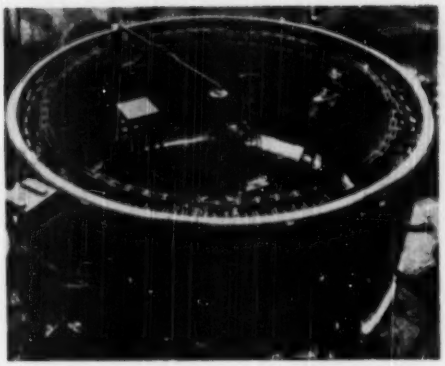
A member of the American Public Health Association and the Lansing Engineers' Club, he joined the Michigan Dept. of Health in 1923, where his duties have covered public health engineering in water and sewage fields and more recently, in administrative and promotional matters of water supply.

Vertical Drawing File Saves Space and Time

A simple and practical system of vertical filing for all kinds of engineering drawings is provided for the use of municipal engineering departments in the Planfile, manufactured by Art Metal Construction Co., Jamestown, N. Y.

The Planfile provides unusually large savings in space, ease of operation, and cost of equipment, according to the manufacturer, who states that the first cost of a Planfile is 52% less than a stack of 30 plan drawers.

New Generator for Seattle



This 66,700-kva waterwheel generator being constructed at the East Pittsburgh plant of Westinghouse Electric Corp., will soon be producing electric power for the City of Seattle, Wash.

. . . for DOUBLE SAVINGS

The FORD COPPERHORN

The Ford Copperhorn for vertical lines provides TWO important savings . . . . first in original settings and then, later, whenever changes or replacements are necessary.

At the time of the initial setting, only two pipe fittings are required, one above and one below. These fittings are not disturbed when meters are changed . . . . all that is necessary is a few quick turns of the meter coupling nuts and the job is done.

WRITE FOR CATALOG

Write today for full information and the complete Ford catalog No. 50—FREE.

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES

FORD

Wabash, Indiana

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They were *mimeographed!* Yes, MODERN mimeographing now actually reproduces printing type faces and intricate drawings—and still is unchallenged for over-all economy. Now add a host of other bonus features. For example, duplicating in 4 or more colors at one time . . . two-sided work on thinner paper . . . mimeographing on almost every kind of paper and card stock.

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Karpark Offers a Two-Car Parking Meter

A new automatic meter to park two cars is being sold by The Karpark Corp., Cincinnati 6, Ohio. It features two separate meter mechanisms in one housing.

A companion meter of similar design and using the same type mechanism as the Twin-O-Matic is offered for single-car parking. This feature is convenient where a city desires to have two-car parking on some streets and single-car meters on other streets. The twin meters can be shifted from a Twin-O-Matic housing into two "Unimatic" meter housings. This flexibility facilitates revisions in parking-meter practice as desired by the municipality.

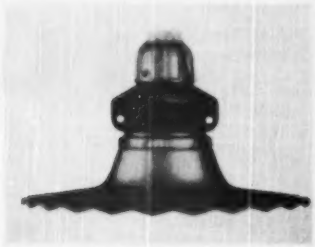
These two meters, like the Karpark Superior and the Husky, are built by The Herschede Hall Clock Co., makers of famous clocks for generations. For full information, write the Karpark Corp., Cincinnati 6, Ohio.

New Distributor Appointments

The Koehring Co. of Milwaukee, manufacturers of heavy-duty construction equipment, has announced the appointment of new distributors in South Dakota, Alabama, and western Texas.

In the South Dakota area, Sioux Road Equipment, Inc. will be the new distributor and will also represent C. S. Johnson and Parsons, subsidiaries of Koehring. Alabama and northwest Florida territories will be handled by the Construction Equipment Co. of Birmingham, and western Texas will be serviced by the Tom W. Carpenter Co. of Amarillo. Both of these representatives will also handle sales and services of the Kwik-Mix and Parsons subsidiaries of Koehring in their respective territories, with the Carpenter Co. handling the C. S. Johnson subsidiary as well.

Full Line of Street Signs



Joslyn luminaire with plain slip fitter.

Senior, junior and open-type luminaires, and the many auxiliaries and accessories of street lighting are detailed in a new street lighting equipment catalog just issued by the Joslyn Mfg. and Supply Co. The Joslyn senior luminaire takes 6,000 to 15,000-lumen incandescants or 15,000 to 21,000-lumen mercury-vapor lamps on streets 60 feet or more wide. Junior takes 1,000 to 2,500-lumen lamps in residential sections.

A wide range of open-type luminaires. In addition to the familiar radial wave and radial bowl reflectors made in steel and aluminum, there are the more scientifically designed Permalux stainless steel reflectors and the Utilux aluminum-coated glass reflectors. The Utilux reflector is made of a special high-strength glass with the aluminum housing fused to the back. Rifle shots and stones make a hole in the reflector but do not shatter it. The light intensity obtained at high angles is 2½ times that obtained with a radial bowl reflector. The light distribution is such that these luminaires can be installed at intersections or between intersections. All of them are designed for use with 1,000 to 2,500-lumen lamps.

The remainder of the catalog describes street light control relays, pipe and upsweep bracket and mast arms, street lighting glassware and steel pole accessories. The bulletins are bound in strong attractive covers under the title *Joslyn Street Lighting Equipment*. For a copy, write Joslyn Mfg. and Supply Co., 3700 S. Morgan St., Chicago, Ill.

Chief Engineer

Louis G. Hilkemeier has been appointed chief engineer of the Construction Equipment Div. of Worthington Pump and Machinery Corp., at Dunellen, N. J., it was announced by K. W. Horsman, Dunellen works manager.

Port Development Survey Of Buffalo Is Planned

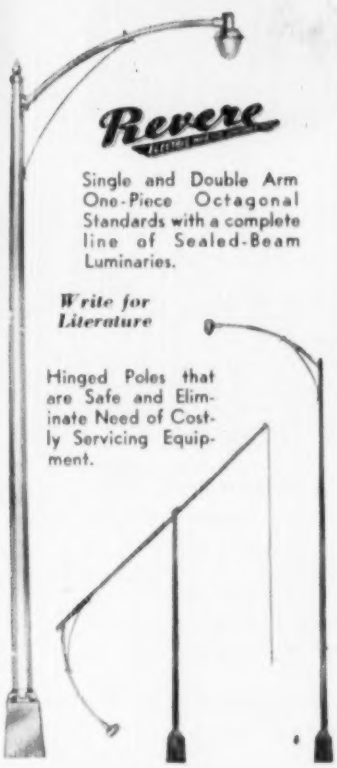
The Knappen, Tippetts, Abbett Engineering Co., 62 West 47 St., New York 19, N. Y., has been retained by the Buffalo Port Commission to prepare a port development survey.

A study of the airport requirements for the Buffalo metropolitan area will be made, including traffic forecasts, airport expansion and estimates of future revenues and expenses.

Have You Considered
Revere ELECTRIC MFG. CO. CHICAGO, ILL. PLANNED LIGHTING
for Your
STREETS-BUSINESS DISTRICTS or BOULEVARDS?

WHITE-WAY
PYLON-LITES
are a Revere creation available with single luminaries or clusters of two or three.
Write today

Acclaimed by Scores of Cities and Communities throughout the Country


Revere
Single and Double Arm One-Piece Octagonal Standards with a complete line of Sealed-Beam Luminaries.
Write for Literature
Hinged Poles that are Safe and Eliminate Need of Costly Servicing Equipment.

OUR ENGINEERS ARE AT YOUR DISPOSAL

REVERE ELECTRIC MFG. CO.
6015 BROADWAY — *INDOOR and OUTDOOR Lighting EQUIPMENT FOR EVERY NEED* — CHICAGO 40, ILL.

Save man hours

with the **EDDY** Mechanical Joint **VALVE**

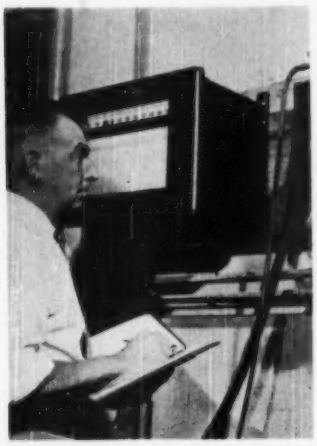
After excavation, two unskilled workmen with a ratchet wrench can install these valves in a jiffy . . . and every joint will be *bottle-tight* under pressure. What's more, they can do the work in a flooded trench, or in any kind of weather, for no caulking, no lead-melting is needed. Eddy Mechanical Joint Valves meet AWWA specifications, and are available in sizes 3" to 12" for use on both centrifugally-cast and sand-cast iron water pipes.

EDDY
VALVE COMPANY
WATERFORD NEW YORK
A subsidiary of James B. Clow & Sons

St. Louis Car Co. Changes

Edwin B. Meissner, President of the St. Louis Car Co., St. Louis 15, Mo., recently announced changes in the company's executive personnel. Edwin B. Meissner, Jr., formerly vice president, has been appointed executive vice president; William F. Kamman, Jr., formerly chief engineer, has been appointed vice president in charge of engineering, and William A. Wheeler, formerly assistant chief engineer, has been appointed chief engineer.

The St. Louis Car Co. manufactures city passenger cars, buses, trackless trolleys, trucks, diesel-electric railcars and locomotives, trains, coaches and freight cars, as well as general railway fittings and supplies.



A typical installation of the recording turbidimeter. The equipment is supplied with either the strip chart recorder shown or circular chart recorder.

Automatically Recorded Turbidity Test

The General Electric Co., Special Products Div., Schenectady 5, N. Y., has developed a photoelectric instrument which automatically measures and records the amount of suspended particles in a liquid.

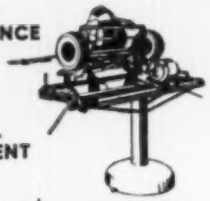
Called a recording turbidimeter, the instrument provides a means for monitoring and controlling processes in water- and sewage-treatment plants where turbidity is a significant condition.

Operating on the principle that turbidity of a liquid varies in direct proportion to the ratio of scattered light to transmitted light through the liquid, the instrument's results are not subject to variations in color of the liquids under test or to variations in voltage supplied to the light source used.

The recording element is furnished calibrated on the silica scale or uncalibrated for those who wish to calibrate their own instruments to agree with previous records. To adjustments are provided for self-calibration: a zero scale set and a range setting.

THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS
•
LOWER CAPITAL INVESTMENT
•
Economically and Quickly Sharpens All Municipal Mowers



Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36 inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor repair in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 258

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.
160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.

Detectron — 505 —
PIPE DETECTORS

FIRST With a Metal Case
FIRST With Shielded Loops
FIRST With "Sure Grip" Handle
FIRST With Lifetime Guarantee

The new DETECTRON Model 505 locates, traces and centers pipes and cables with speed and accuracy. Small, compact, lightweight — with HEAVY DUTY PERFORMANCE.

★ HIGHER QUALITY
★ LONGER LIFE
★ LOWER PRICE

TRIPLE VALUE!

For Complete Information Write for Folder 11-R

THE *Detectron* CO.
5637 CAHUENGA BLVD. NORTH HOLLYWOOD, CALIF.

A. B. Dick Company Buys Lithomat Corporation

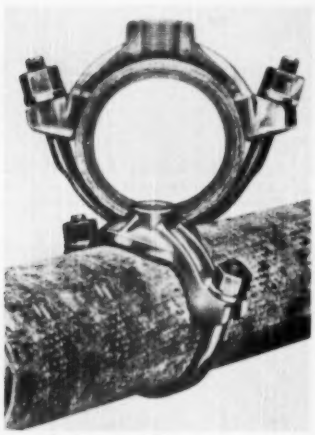
The A. B. Dick Company, Dept. AC-1050, 5700 W. Touhy Ave., Chicago 31, Ill., originators of the mimeograph, has purchased the Lithomat Corporation of Cambridge, Mass., according to a statement by Mr. A. B. Dick, III, president.

Mr. Dick also announces that Mr. William G. Mullen, former vice president and director of Lithomat, an office offset duplicating business, joins the concern as a consultant.

The products will be packaged under the company label and known as A. B. Dick Mimeolith supplies for offset duplicators.

Plans are being made to introduce an advanced offset duplicator with many innovations, Mr. Dick reveals. He points out that the offset process will not obsolete mimeographing since research and sales records list users of the mimeograph equipment in 13 of the 15 major markets for duplicating supplies.

"We share the opinion with users of both processes that the two complement each other," Mr. Dick declares.



Single-Strap Clamp Simplifies Pipe Connections

A new type single-strap clamp, manufactured by Smith-Blair, Inc., 535 Railroad Ave., South San Francisco, Calif., simplifies making lateral pipe connections to branch and main pipelines.

This new product makes unique use of special, shaped, molded rubber and oil resistant gaskets, to effect a leakproof seal for the clamp, described by the company as "taper sealing."

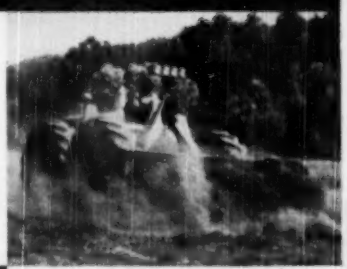
A principal feature is a wedging action of the resilient gasket which develops partly from hydraulic pressure within the pipe plus only a moderate tightening of the strap nuts.

The taper seal idea was originally developed for use on asbestos-cement pipes, but is now in production for light wall steel pipes. Extra-wide arc saddles are said to avoid the extreme crushing pressure formerly required to properly seat metallic type gaskets. Contact manufacturer for further information.

19 m.p.h. DOZERS on RUBBER drive city streets... get more work done

1 Doze Dirt

Tournadozer is ready at a moment's notice to drive anywhere at speeds up to 19 m.p.h. . . . grade parking lots, spread cinders, maintain roads. Fast forward and reverse speeds let rig double ordinary crawler output. Instant gear selection retains vital momentum, keeps big loads rolling.



2 Cover Garbage

One 180 h.p. Model "C" or one 122 h.p. Model D Tournadozer will handle all operations on city landfill dump. One versatile rig excavates disposal trenches . . . spreads truck-dumped garbage . . . solidly compacts refuse during normal travel . . . covers it with dirt from next disposal trench.

3 Stockpile Coal

Tournadozer's giant 21.00 x 25 low-pressure tires, high shuttle speeds, and fast-acting electric-control blade make it ideal for handling coal. Rig rolls easily over surface . . . compacts coal without crushing it . . . reduces possibility of spontaneous combustion.

4 Plow Snow

Equipped with regular 11'2" Dozer, or interchangeable 12'3" V-plow, Tournadozer is an excellent snow and ice-removing tool. Adjustable runner shoe, giant tires protect surface. Your LeTourneau Distributor can give you all the facts. Call him, or write TODAY.

Mail Today to R. G. LeTOURNEAU, Inc., Peoria, Ill.

for information on ☐ 180 h.p. Model C or ☐ 122 h.p. Model D Tournadozer to be used for

NAME

TITLE

DEPARTMENT

CITY, STATE

LeTOURNEAU TOURNADOZERS

IT'S RUBBER THAT PUTS THE ACTION IN TRACTION

-EVER HOPE FOR A FENCE THAT NEVER NEEDS PAINTING?

Copperweld NON-RUSTING CHAIN LINK FENCE

Copperweld* Chain Link Fence is the protective fence that protects itself. It *never* needs a drop of paint—no maintenance costs to worry about. There's no other fence like it. It is made of Copperweld Wire—with a thick, durable copper covering inseparably "Molten-Welded" to a strong steel core.

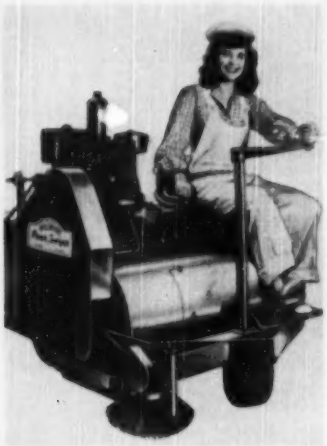
Because of its unique construction, Copperweld Fence is rust-proof, corrosion-proof. It provides long lasting property protection regardless of atmospheric conditions. It stays strong and in alignment. It costs less because it lasts longer.

Write today for a sample of Copperweld Fence and a copy of our new catalog—free on request.

*Trade Mark

COPPERWELD STEEL COMPANY
1015 Monongahela Ave., Glassport, Pa.

Heavy-Duty Sweeper For Many Uses



Outstanding feature of the model 1000 is an adjustable "Anti-Fatigue" seat which is placed on the front of the sweeper, thereby giving the operator a complete view of the sweeping area.

Additional features include: A special dust control unit which eliminates the dust problem since all dust is sucked up into an easily-emptied hopper and thereby extends the life of floors and equipment; a special roller guide that permits sweeping right up to any obstruction without scrapping or marring; and a "Light-Touch" foot pedal that raises the sweeper enabling it to pick up larger objects with ease.

Of heavy, one-piece, welded steel plate construction, the model 1000 is powered by an 8-hp, 4-cycle, air-cooled engine. The sweeper is equipped with eight dual brushes of extra heavy duty Tampico fibre and spring steel wire mix, and is available with a 36-inch sweep which can be extended to 42 inches by the use of a curb brush attachment and a 48-inch sweep which a curb brush would extend to 54 inches.

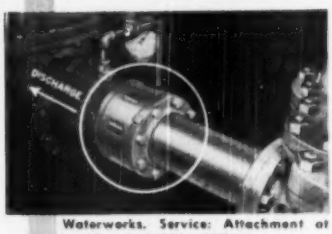
The Wilshire Model 1000 is equipped with all safety features that have helped make the entire line of Wilshire power sweepers so popular.

The Wilshire Power Sweeper Co. manufactures an entire line of sweepers to fit every indoor and outdoor requirement. Additional information may be obtained from the company at 4615 Alger St., Los Angeles 39, Calif. Immediate shipment is available on all Wilshire sweepers.

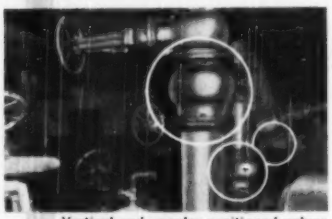
Hubbard Builds New Plant

A new $150,000 plant building for the manufacture of aluminum pole line hardware, specialties, and street lighting equipment will be completed this month for Hubbard & Co., Pittsburgh, Pa., as an addition to their present plant at 63rd and Butler Streets, Lawrenceville, Pa.

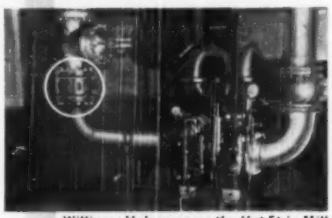
WILLIAMS-HAGER
flanged
Silent check
VALVES



Waterworks. Service: Attachment at small end of 6" by 10" increaser.



Vertical and angular positioned valves protect high pressure pumps at the Longview Fibre Company.



Williams Valves serve the Hot Strip Mill descaling systems in a large Eastern Steel Mill.

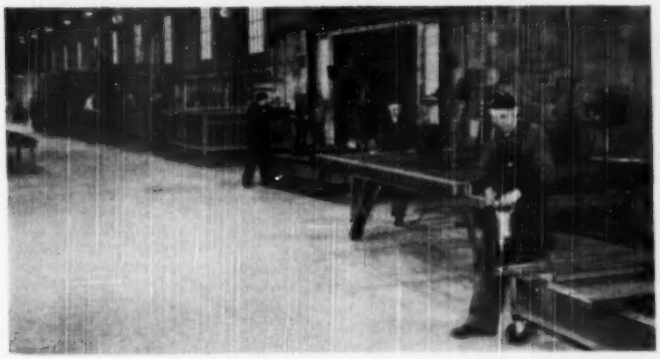
on duty
EVERYWHERE

Dependable protection against water hammer in any position . . . silent operation . . . renewable disc and seat . . . built of materials to suit your installation's needs, in standard pipe sizes from 1" to 20". *Write for Bulletin WH 100.*

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3013 PENNSYLVANIA AVE. • PITTSBURGH (33), PA.



Sanivan Manufacturing Plant

Interior of Sicard, Inc. plant at Watertown, N. Y., showing assembly line of new Sanivan refuse collector, with its improved refuse compacting mechanism and unloading floor.

Fire Fighting Brooms

In fire fighting, the dependability of the broom used is of major importance. There must be rugged durability, and if the broom fails during the emergency, for any reason, the results can be serious. All this is taken into consideration in the construction of Perfex fire-fighting brooms, manufactured by the Brooklyn Fibre Broom Co., Inc., 47 Dinsmore Place, Brooklyn 8, N. Y.

The tough, hardwood handle is riveted fast to an electrically welded steel cap. Model No. 1 broom is filled with whole rattan—lively, fresh fiber. This is a heavyweight fire broom, for underbrush and bush fires. Model No. 2 broom is filled with split rattan, made especially for grass and meadow fires, where a thicker filler is needed for smothering action. Both models are constructed for durability and dependability.

Versatile Loader Dumps While in Motion

The Skyline "90" loader, manufactured by The Skyline Corp., 1521 McLean Blvd., Wichita, Kans., digs and scoops, bulldozes, and dumps from any position while in motion.

Terracing, bulldozing and leveling are made easy; the third ram effectively controls the pitch of the dozer, enabling operator to dig, doze, and level, by tilting the angle of the blade.

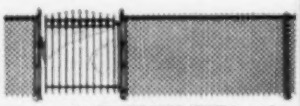
Operator has fingertip control; new cross brace on the lifting arms gives more rigid construction, eliminates twisting and sideway of arms. The Skyline "90" will lift 1,000 pounds of dirt 10 feet, several times a minute, and twice as much to a more limited height.

Stewart PRODUCTS

FOR PUBLIC PROPERTY

Here are a few of a wide range of high-quality products Stewart manufactures for the protection and beautification of all types of public property. There are many more. So if the product you need is made of iron, wire or bronze, it will pay you to write us.

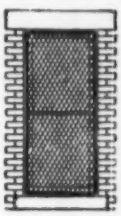
FLAGPOLES—Made of full weight standard pipe, heavily galvanized. Furnished with pulley, but not rope. When writing for prices please give desired height above ground line.



Stewart CHAIN LINK WIRE FENCE is made in several styles, heights and weights, with or without arrangement for barbed wire overhang. Style OTM with iron gate is illustrated.

WIRE MESH PARTITIONS — Sectional—fit any space—easily and quickly erected. Ideal for locker rooms, storerooms, toolrooms, etc.

Stewart IRON PICKET FENCE is available in an unusually wide range of designs and in plain or ornamental iron. Walk and drive gates are made to match line of fence.



WINDOW GUARDS (wire or iron) in standard or special sizes to fit any size or shape opening. When requesting prices please send sketch and give all measurements.

No. 370 SETTEE—Comfortable, attractive, long-lasting. Framework is galvanized after fabrication for maximum resistance to rust. Wood slats painted green. Made in 4', 5' and 6' lengths. Prices on request.

Other products: Iron Railings, Steel Folding Gates, Ornamental Iron Lanterns, Grilles, Bronze Plaques, etc. When requesting literature, please mention products in which you are especially interested. This enables us to send correct catalogs

Stewart IRON and WIRE FENCES

The Stewart Iron Works Co., Inc.

1721 Stewart Block, Cincinnati 1, Ohio

Experts in Metal Fabrication Since 1886

Bright by Day-
BRIGHTER
By Night
WITH
KERRIGAN STANDARDS
Like These

Daytime view with two of the antiquated lamp posts formerly used to "light" the town (note the contrast to the modern Kerrigan Weldforged Standard at left).

Same scene lighted by the new Kerrigan Standards, with streets and sidewalks brighter by night than shown in the daytime picture above.

Drive safely . . . walk safely . . . on well-lighted streets in YOUR town! Kerrigan Weldforged Lighting Standards, designed and engineered to shed their light at the ***driving*** and ***walking*** levels, can make night-driving both easy and safe in your city. Kerrigan standards meet the highest engineering standards for highway and street lighting. Write today for Catalog AIA for detailed specifications.

FREE

Just send your request (on your letterhead, please) to—

KERRIGAN IRON WORKS, INC.
General Sales Office
274 MADISON AVENUE, N. Y. C.

New Sales Representative

The Kennedy Valve Mfg. Co., 1030 East Water St., Elmira, N. Y., recently announced the appointment of Shelby Herron as Sales representative for the State of Texas.

Shelby Herron

Before joining the Kennedy organization, Mr. Herron was in sales engineering work in the oil field supply business, and he has had wide experience in the machining and construction fields.

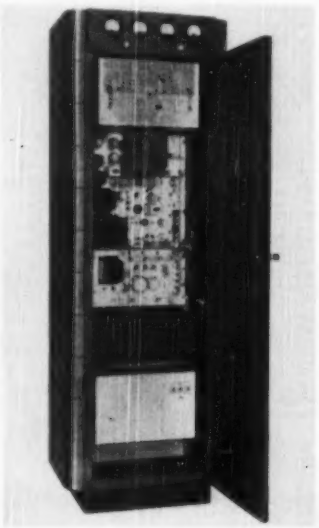
Mr. Herron will handle sales for the complete Kennedy line of bronze and iron-body valves, waterworks valves and fire hydrants, malleable iron, bronze, and cast iron fittings.

New RCA Equipment For 2-Way Communication

Two new RCA Fleetfone station equipment units for fixed station use in the communications systems of police and fire departments, forestry, conservation, bus and truck companies, and other services requiring effective coverage over relatively large areas, have been announced by the Mobile Communications Section of the RCA Engineering Products Department.

The new units, both designed for adjacent channel operation in the 30-30 megacycle band, are a general purpose 70-w Fleetfone station equipment unit and a 250-w Fleetfone station equipment unit for large metropolitan systems or rural applications demanding coverage of extensive areas. Both are mounted in strong, durable, attractively styled cabinets with locking doors on front and rear. Rear door is interlocked, so that the circuit supplying plate power to all tubes is broken when it is opened. This is a safeguard against accidental injury to operating personnel. There are no exposed voltages on the front of the chassis.

New literature describing this equipment in detail may be obtained by writing to Radio Corporation of America, RCA Victor Division, Camden 2, N. J.



The new RCA Fleetfone transmitter and receiver for fixed-station use in the communications systems of police and fire departments and industrial users.

ROSS
AUTOMATIC
VALVES

Altitude Valves
For control of elevation and heads into and out of tanks, basins and reservoirs, hydraulic control.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.
4. Can be equipped with electric and manual controls.

Combination Valve
This valve will permit flow in one or both directions acting as
1. Pressure Reducing and Relief Valve.
2. Pressure Reducing and Altitude Valve.
3. Relief and Altitude Valve.

Remote Control Valve
Electric remote control — solenoid or motor can be furnished. Adapted for use as primary or secondary control on any of the hydraulically controlled valves.

Also—
Pressure-Reducing Valves, Relief and Surge Valves Back-Pressure Valves, Etc.

Established 1879
ROSS VALVE MFG. CO.
Incorporated
P.O. BOX 596, TROY, N.Y.

Wickwire Spencer Appoints John H. Burch

John H. Burch has been appointed sales manager of the Detroit District of the Wickwire Spencer Steel Div. of The Colorado Fuel and Iron Corp., according to an announcement by H. C. Allington, general manager of sales, at the executive offices of the corporation in New York City.

J. H. Burch

Mr. Burch will make his headquarters at the Detroit District Sales office, 1915 National Bank Bldg., Detroit 26, Mich. He succeeds Mr. L. A. Watts, who will continue as sales manager of the wire and pig iron and semi-finished steel departments of the Wickwire Spencer Steel Div., with offices in the Wickwire Bldg., 361 Delaware Ave., Buffalo 2, N. Y.

Maintenance Enamel Carefully Engineered

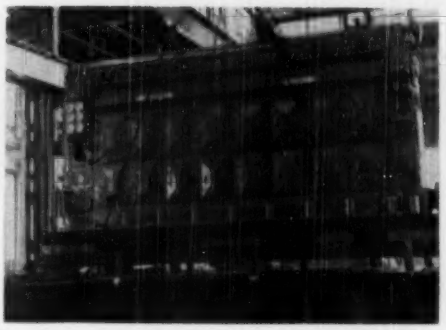
A new line of all-purpose maintenance enamel has been announced by the Paint Sales Div. of the Joseph Dixon Crucible Co., Jersey City 3, N. J. Colors in the new line include black and white, and range from a selection of grays to brilliant shades of red, blue, green, and orange.

Carefully engineered to withstand abrasion, vibration, chipping, water, and weather, Dixon Maintenance Enamels dry to a hard, non-fading gloss. These enamels are especially suited to modern industrial maintenance. The same coatings can now be used for floors, machinery, dadoes, piping, and safety area identification, thereby eliminating the need for purchasing relatively small amounts of many different kinds of coatings, with their attendant waste.

The enamel is equally useful as a coating on equipment used outdoors and exposed to the weather, such as tractors, graders and scrapers.

New York City Sludge Gas Power

Power for New York City's newest and largest sewage plant will be supplied by six of these 1,300-hp Superior diesel engines, manufactured by the National Supply Co., Engine Div., Springfield, Ohio.



SPECIALISTS IN THE REVALUATION OF REAL ESTATE, PERSONAL PROPERTY AND PUBLIC UTILITIES FOR LOCAL TAX EQUALIZATION PURPOSES

Illustrated Brochure Upon Request

THE J. M. CLEMINSHAW CO.
APPRAISERS
FOUNDED 1923
UNION COMMERCE BLDG., CLEVELAND

Our Twenty-Seventh Year

"Public Appraisal Service is a Public Trust"

American Vacuum Leaf Loader

Solves your leaf or clean-up problem

Write for leaflet

LEAF LOADER DIVISION

American Structural Steel and Tank Co.

21050 W. 8 MILE ROAD DETROIT 19, MICH.

Power Tool for Line, Brush Clearance, Tree Trimming

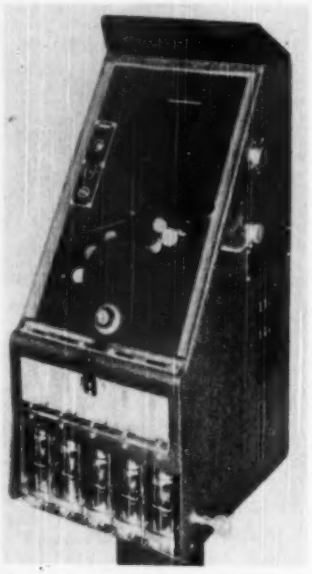
New device makes operations mechanical.

A revolutionary power shear, the Henry No. 500 Silver Giant, has been announced by The J. T. Henry Mfg. Co., Hamden, Conn. Complete mechanization of line clearance, brush clearance, and grubbing is achieved by this greatly needed tool. Designed to cut labor costs, the No. 500 Silver Giant trims trees with minimum effort, and heavy grubbing is quickly handled.

The new machine operates with 125-pound air pressure, cuts 2-inch hardwood branches cleanly with one-stroke, trigger action, at a rate of 25 cutting strokes per minute. Worker fatigue is kept at a minimum. The tool is available in lengths from 3 to 10 feet, and is made of lightweight aluminum alloy with jaws of tempered steel. It is also available with completely insulated fibre glass shafting.

This new slim power shear has no awkward, protruding arms or levers. The tool is fully guaranteed by the manufacturer.

Fare Register and Other Coin Machines



New Fare Register to relieve bus driver from cashier work.

Shown here is a fare register for streetcars and buses that is intended to take the worries of fare collecting away from the driver, permitting him to pay full attention to driving.

The new Grant Electrofarer receives any combination of fares, including tokens of various sizes. It is not a slot insertion as the rider or patron drops the full amount of mixed coins directly into the receiving hopper at the top. The coins are registered and totalized instantly on a large, visible counter. Audible signals tell that the exact amount has been deposited. This fare remains on inspection until the next fare is dropped in, whereupon the preceding fare automatically is separated,, and the coins dropped into their respective tubes of a change dispenser in the bottom of the fare register. This change dispenser, unique in itself, is adjustable so the driver can dispense, with one flick of the thumb, any predetermined number or amount of coins in making change for the patron.

The new device, developed after years of constant research and experimentation, is the only 100% automatic fare collecting unit in the world. Its robot action, by relieving the driver of the necessity of watching fare registration closely, allows him to follow time schedules more exactly and to devote his entire attention to safety measures while operating his vehicle.

The device is sold by Money-Meters, Inc., 17 Warren St., Providence 7, R. I., makers of coin meters, change carriers, coin sorters, wrappers and tokens.

You Take it Apart
See for YOURSELF the Unusual SIMPLICITY of Buffalo-made American Water Meters
AMERICAN (Bronze Case) WATER METERS
NIAGARA (Galv. Iron Case) WATER METERS
Only five submerged moving parts — only one moving part in the measuring chamber. No meter built in the United States today is as simple in design. The simplicity of American Meters means long service, low repair cost and smaller inventory of parts.
BUFFALO METER CO.
2902 MAIN STREET, BUFFALO 14, N. Y.

NEW!
PATHFINDER
PIPE LOCATOR
NOW TRADE-IN YOUR OLD PIPE LOCATOR
★ Powerful Precision Unit
★ Economically Priced
★ Lifetime Guarantee
PATHFINDER is today's BEST BUY! This amazing new 1950 pipe locator is FIRST with a liberal trade-in allowance for your old equipment — first with all vital features combined in one handy, compact unit.
Take advantage of this money-saving opportunity. Get the facts at once and you'll buy a PATHFINDER!
Quickly and accurately locates position and depth of pipes, lines, valves and buried tools.
Write! State model and year of locator to be traded.
PATHFINDER COMPANY
1726 Beverly Drive ▪ Pasadena 7, California

CIRCUL-AIR
FIRE HOSE DRYER

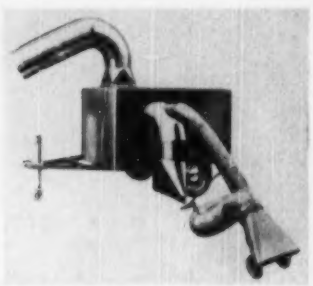
WRITE FOR BOOKLET
Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.
THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

Combination Snow-Fighter, Beach Refuse Collector

New York City's Department of Parks will use a Walter Snow-Fighter for clearing snow from the City's highways this winter, as well as for collecting refuse from the City's Park System beaches. The unit, manufactured by the Walter Motor Truck Co., Inc., Ridgewood 27, Queens, L. I., N. Y., is provided with one-way speed plow and center scraper, power hydraulic controls, for plowing snow and scraping ice from pavements.

This Walter Four Point Drive chassis is equipped with 150-hp engine, and weighs 36,000 pounds, G.V.W. The tires are extra-large, 16:00-24, low pressure, single. The combination of the superior traction obtained with the Walter Four Point Drive system and the large, single tires permits operation on soft, sandy beaches.

Vacuum Cleaner for Streets



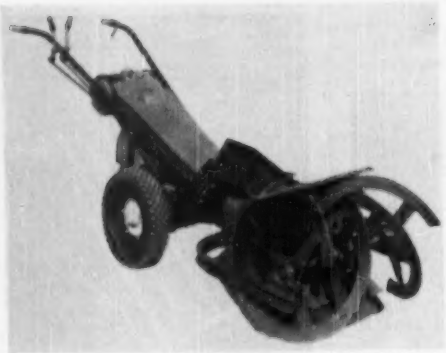
Special dolly-mounted hose is attached to leaf loader.

Only two men are required to operate the American Vacuum Leaf Loader, which does a fast, clean job of removing leaves from streets. Manufactured by the American Structural Steel and Tank Co., 21050 West Eight Mile Road, Detroit 19, Mich., the leaf loader is similar to an over-sized vacuum cleaner.

A powerful gasoline engine drives the large blower through V-belts. Engine and blower are mounted on a portable two-wheeled trailer which can be quickly connected or dismounted from a truck.

Wet or dry leaves are sucked up by the blower-created vacuum, then pass through the blower and are blown into the collecting truck. A special 10-inch diameter, extra-long flexible hose is furnished for attachment to the inlet elbow. The hose is mounted on a two-wheel rubber dolly, equipped with a handle, for picking up leaves from places inaccessible to the standard suction nozzle.

Long Life
EMBOSSED TRAFFIC SIGNS
NO PARKING ANY TIME
WRITE FOR CATALOG
Cataphote Corporation
TOLEDO, OHIO



Blower attachment available for Gravely Tractor.

Heavy-Duty Snow Blower

A new heavy-duty snow blower that will handle snows up to four feet deep is now available for the 5-hp Gravely tractor. The snow-blower attachment is quickly adjustable to throw snow either to the left or right, at any angle desired by the operator, and will cut a swath 25 inches wide, through snows up to four feet deep.

The snow-blower attachment is one of 20 attachments for the Gravely tractor, which include reel mower, gang mower, sickle bar, rotary plow, cultivating tools, lawn roller, blade-type plow and power brush.

The manufacturer, Gravely Motor Plow and Cultivator Co., Box 973 Dunbar, W. Va., has published a new circular, "*How to Solve Snow Removal Problems with Gravely Power Equipment*," which is free upon request.

Contractors Pledge Readiness

The general contracting industry reports ample capacity to carry out all defense construction with the maximum of speed and economy, according to The Associated General Contractors of America, Inc. In carrying out the largest peacetime construction program in history, the industry has its forces mobilized and available to carry on the present program and for immediate defense work.

In order that defense and essential civilian construction may be carried out most efficiently, The Associated General Contractors of America pledges that all of its members will do their utmost to complete all work as fast and efficiently as possible. They make the following recommendations:

1. That all defense construction be carried out through the normal channels of the industry, with fixed price contracts awarded after competitive bidding wherever practicable in the Continental United States and its territories.

2. That the sellers of materials and machinery and subcontractors submit firm prices wherever possible.

3. That fair and just wages should be paid to workmen and all steps should be taken to obtain greater production, maintenance of wage rates for agreed upon periods of time, settlement of jurisdictional disputes without stoppages of work, and to provide training of adequate numbers of apprentices.

4. That general contractors can operate most effectively in emergency as well as peacetime when their organizations are kept intact and they retain ownership and operation of their equipment.

5. That government agencies adopt policies which make the least possible disruption to normal practices and procedures of the industry which have been developed through the years as the most efficient methods of operating.

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